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FINAL EVALUATION OF THE MSUNDUZA DRY SANITATION PROJECT



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Evaluation is a generic part of the project cycle, which gives critical information to the funder and different stakeholders of development projects, striving to improvement of the development aid, strategies and policies. Evaluation is a periodic, objective assessment of a planned, ongoing or already completed project. It answers specific questions related to project design, implementation and results. Final evaluation is summative and it typically focuses on the impacts of the program, demonstrating the project achievements and the realization of objectives, including the analysis of successes and failures.

The Msunduza Dry Sanitation Project has been a joint development cooperation project between Turku University of Applied Sciences, Global Dry Toilet Association of Finland and Salvation Army of Swaziland. Other local partners are the City Council of Mbabane, University of Swaziland and Green Living Movement Swaziland. The project has been funded by the Ministry for Foreign Affairs of Finland. The project was implemented in 2007-2013 in Msunduza, a township in Mbabane, the capital of Swaziland. The project aimed to improve the sanitation hygiene in the project area by building composting dry toilets and providing sanitation education in the community, while promoting the use of the end products in home gardening in order to increase local food production.

The findings in the final evaluation show that the project managed to increase the awareness of good sanitation and hygiene practices in the Msunduza community. The project increased the knowledge of dry toilets and their benefits in different levels. An introduction of dry sanitation in Swaziland can be seen as one of the achievements of the project. This answers to the demand of different solutions of sanitation, water scarcity and other environmental challenges.

However, inadequate practices in dry toilet use exist in Msunduza. The problems appear especially with the public toilets, while generally the sanitation situation of the direct beneficiaries has improved. The goal of increased composting and home gardening could have been achieved better. The stigma together with the lack of practical use of the end products and belated education on composting have slowed down the process of community seeing the full benefits of the project. This also affects the sustainability. Strong and clear structures to sustain the achievements and activities at the end of the project are missing. More local cooperation between the stakeholders would have been needed in order to gain full ownership of the project and support sustainability.

KEYWORDS:

evaluation, development project, dry sanitation, Swaziland

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MSUNDUZAN KUIVASANITAATIOHANKKEEN LOPPUEVALUAATIO

Evaluaatio on tärkeä osa kehitysyhteistyöhankkeita antaen hyödyllistä tietoa niin rahoittajalle kuin hankkeen osallisille. Hankkeiden evaluoinnilla tähdätään kehitysavun, strategioiden ja politiikan jatkuvaan kehittämiseen. Evaluaatio on ajoittainen ja objektiivinen arviointi suunnitellusta, käynnissä olevasta tai jo päättyneestä hankkeesta. Se vastaa tarkoin määriteltyihin kysymyksiin projektin suunnitelmasta, toteutuksesta ja tuloksista. Loppuevaluaatio on luonteeltaan summatiivinen ja keskittyy yleensä hankkeen vaikutuksiin analysoiden tavoitteiden toteutumista, saavutuksia ja mahdollisia epäonnistumisia.

Msunduzan kuivasanitaatiohanke on ollut Käymäläseura Huussi Ry:n, Turun ammattikorkeakoulun ja Swazimaan Pelastusarmeijan välinen projekti, jota rahoitti Suomen Ulkoministeriö. Muita paikallisia yhteistyökumppaneita olivat Mbabanen kaupunginkanslia, Swazimaan yliopisto ja Green Living Movement. Hanke toteutettiin vuosina 2007-2013 Msunduzan esikaupunkialueella, joka sijaitsee Swazimaan pääkaupungissa Mbabanessa. Hankkeen tavoitteena oli kohdealueen sanitaatiotilanteen parantaminen kuivakäymälöitä rakentamalla, yhteisön jäseniä kouluttamalla sekä edistämällä kompostointia ja lopputuotteiden käyttöä kotiviljelyssä paikallisen ruoantuotannon lisäämiseksi.

Tulosten mukaan hanke onnistui lisäämään tietoisuutta asianmukaisesta sanitaatiosta ja hygieniasta Msunduzan yhteisössä. Hanke lisäsi sanitaatoratkaisuja sekä tietoa kuivasanitaatiosta ja sen hyödyistä. Yksi hankkeen saavutuksista on kuivasanitaation käyttöönotto Swazimaassa, vastaten näin ympäristöön liittyviin haasteisiin kuten sanitaatoratkaisuihin ja veden puutteeseen.

Itse hankealueella esiintyy kuitenkin ongelmia käymälöiden asianmukaisessa käytössä. Vaikka kohderyhmän sanitaatiotilanne on parantunut, on yhteisöllä ongelmia erityisesti julkisten käymälöiden kanssa. Tavoite lisääntyneestä kompostoinnista ja kotiviljelystä olisi voitu saavuttaa paremmin. Käymäläjätteen ympärillä ollut stigma, lopputuotteiden hyödyntämättömyys käytännössä sekä myöhäinen koulutus ovat vaikuttaneet ihmisten käsityksiin hankkeen hyödyistä. Tämä vaikuttaa myös hankkeen kestävyYTEEN. Rakenteet saavutusten ja toimintojen ylläpitämiseksi ovat heikot hankkeen lopussa. Paikallista yhteistyötä asianosaisten kesken olisi tarvittu enemmän, jotta hankkeen paikallinen omistajuus ja pidempiaikainen kestävyys voitaisiin taata.

ASIASANAT:

evaluaatio, kehitysyhteistyö, kuivasanitaatio, Swazimaa

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LIST OF ABBREVIATIONS

CIA	Central Intelligence Agency
EHEP	Environmental Health Education Project
GDTAF	Global Dry Toilet Association of Finland
GLM	Green Living Movement
HIV/AIDS	Human immunodeficiency virus infection / acquired immunodeficiency syndrome
MDGs	Millennium Development Goals
MEA	Msunduz Environmental Association
MFA	Ministry for Foreign Affairs of Finland
MSDP	Msunduz Dry Sanitation Project
NGO	Non-governmental organization
OECD/DAC	Organisation for Economic Co-operation and Development/ Development Co-operation Directorate
PRA	Participatory Rural Appraisal
PLA	Participatory Learning and Action Plan
RRA	Rapid Rural Appraisal
SMDGPR	Swaziland Millennium Development Goals Progress Report
TUAS	Turku University of Applied Sciences
UNEG	United Nations Evaluation Group
UNICEF	United Nations Children's Fund
UNISWA	University of Swaziland
WHO	World Health Organization

1 INTRODUCTION

Evaluation is a generic part of the project cycle and evaluating development projects is important for many reasons. Evaluations give critical information to the funder and to different stakeholders of the development projects, finding the stumbling blocks and defining the lessons learnt while striving to improvement of the development aid, strategies and policies. Increasingly, participation of all stakeholders is emphasized in the evaluation processes. The common principles, criteria and standards of evaluating development projects have been jointly developed and agreed in the OECD/DAC (Development Co-operation Directorate).

The analytical, conceptual and political framework of development has been and is changing, especially through the global UN Millennium Development Goals (MDGs) of reducing poverty, hunger, disease, lack of adequate shelter, water and sanitation and promoting gender equality, health, education and environmental sustainability (UN). The current development agenda calls for wider understanding of sectors, countries, development policies and strategies, emphasizing continuous learning and feedback at all phases of the project cycle (Morra-Imas 2009).

The information that evaluations provide is wide and varies from needs assessment and implementation processes to the short and long term impacts. Evaluations aim to measure the value of something answering the questions of is something worth doing — not necessarily in economic measures. These kinds of questions of value and impacts on human development can be very complex and have many meanings to it depending on the objectives of the evaluation and the chosen perspective and scope.

Conducting the evaluation and writing this thesis has been a learning experience. During the spring of 2013 Swaziland and the Msunduzi Dry Sanitation Project introduced the development projects to me more closely and practically than before, sparking the formerly simmering interest towards development work. During that time it became clear of which components

development work consists. During the evaluation it became obvious how broad and demanding task evaluation can be. At times a larger team, greater experience or narrowed research subject would have been required. Thankfully, there were many people who gave their support in terms of knowledge and practical guidance. Therefore, great compliments to all the people who contributed towards the evaluation process giving their time and made this work possible: Mr. Emmanuel Mutamba, Mr. Bheki Matambo Ngobese, Mrs. Jonna Heikkilä, the Sanitation Experts, Mr. Captain Nhlanhla Ziqubu, Ms. Ellen Matsenjwa, Dr. Ababu Teklemariam Tiruneh, Mr. William Ndelela, Ms. Anni Salla, the Msunduza community leaders, all the interviewed community members and other people met on the way.

2 MSUNDUZA DRY SANITATION PROJECT

The UN Millennium Development Goals (MDGs) of Water and Sanitation are to halve the proportion of people without sustainable access to safe drinking water and basic sanitation by year 2015. The global target of access to safe drinking water was met already at the end of 2010, but the world remains off track to meet the MDG sanitation target. (UNICEF; WHO 2012.) The Msunduza Dry Sanitation Project was implemented in 2007 to respond to the need of sanitation development in Swaziland.

2.1 Swaziland

Swaziland is a landlocked country situated in Southern Africa, with border countries South Africa and Mozambique (Picture 1). The terrain consists of mostly mountains and hills with some moderately sloping plains, the climate varying from tropical to near temperate. The total land area of Swaziland is 17,364 square kilometers with 10% arable land and 0.86% permanent crops. At times Swaziland is hindered by drought and current environmental issues include limited supplies of potable water, overgrazing, soil degradation and soil erosion. (CIA)



Picture 1: Map of Swaziland (CIA)

Swaziland is Africa's last absolute monarch ruled by King Mswati III. Autonomy for Swaziland was guaranteed by the British in the late 19th century and the independence was granted in 1968. Although a constitution came into effect in 2006, the legal status of political parties remains unsolved and is debated (CIA). The population of Swaziland is 1,403,362 (July 2013 est.) with a population growth rate 1.17% (CIA) and life expectancy at birth is 52 years for males and 55 years for females (WHO 2012). Swaziland has the world's highest rate of HIV/AIDS, adult HIV prevalence being 26% (UNICEF 2011). According to WHO (2010), HIV/AIDS was the biggest cause of death (23%) in children under 5 followed by other diseases (19%), prematurity (15%), pneumonia (14%), birth asphyxia (9%) and diarrhea (7%). Due to HIV/AIDS there are many orphan children living in Swaziland. The age structure is youth balanced as it forms of 37% of 0-14 years old, 22% of 15-24 years old, 33% of 25-54 years old, 4% of 55-64 years old and 4% of 65 years and older, the total dependency ratio being 70% and the median age 20.7 years (CIA). Approximately 41% of the population lives below the international poverty line of US\$1.25 per day (UNICEF 2007-2011).

2.2 The MDGs of Water and Sanitation in Swaziland

Swaziland is one of the developing countries with inadequate sanitation facilities and some people are still living without access to safe drinking water. Based on the statistics in 2011, 72% of the population in Swaziland has access to improved drinking water sources out of which urban rate is 93% and rural rate 67%. Only 57% of the population has access to improved sanitation facilities out of which urban rate is 63% and rural rate 55%. (UNICEF; WHO.) In the Swaziland Millennium Development Goals Progress Report (SMDGPR) of 2010 it was noted that housing conditions vary greatly in rural and urban areas. Rural, and part of the peri-urban, households rely on public taps, surface water and dug-protected wells. The proportion of population using improved drinking water source is the percentage of the population using a potable water supply, not including e.g. unprotected wells and springs. As groundwater quality is mostly

suitable for domestic use, the report stated contamination of groundwater sources as a potential threat to the future value of the water resources. The report noted that the MDG target of improved sanitation may or may not be met, and the access to improved sanitation had increased in rural areas, whereas the urban areas, including peri-urban areas, had not improved significantly. In 2007 the rural rate was 57% and the urban rate 56%.

Based on the statistics and reports above it now seems that the development of improved sanitation has slowed down in the rural areas whereas improvement can be seen in the urban areas. The Swaziland Ministry of Health in collaboration with other stakeholders more than doubled the construction rate of VIP (ventilated improved pit) latrines between 2000 and 2009 (SMDGPR). Msunduzi Township, the area for Msunduzi Dry Sanitation Project, also received a number of pit latrines from the Mbabane municipality. However, these were largely left unused since the project only provided the chamber and the seat while the superstructure was left for the end users to build. (Akatama 2008.) One important question in development projects is, whether the interventions actually have improved the welfare of the targeted beneficiaries. The evaluation of Msunduzi Dry Sanitation Project is aiming to define the impacts and the results of the project in the project area.

2.3 The project area

The Msunduzi Dry Sanitation Project was implemented in the Msunduzi Township, which is the oldest and with its estimated 16 000 inhabitants (1997 statistics) also the biggest township in Mbabane, the capital of Swaziland (Koivisto 2005). Msunduzi is densely populated and located close to the city centre. Steep topography, poor roads, rather small plots and inadequate infrastructure are the main features of Msunduzi (Akatama 2008). Msunduzi has an informal and weak socio-economic status, although almost half of the area has an official status. The social characteristics in the area include poverty, unemployment, temporary settlement and increasing prolonged stress due to

the peri-urban living, while the area has inadequate housing and sanitation facilities, especially in the informal subzones. In the areas with an official status, 70% of the households have water closets compared to 10% of the households in the unofficial areas, and for the rest, the sanitation solutions are diverse. (Koivisto 2005.) Traditional pit latrines are commonly used, some use neighbours' toilets or simply buckets, while some rely on bushes or 'flying toilets', which means that defecation is done in a plastic bag and disposed to the environment, sometimes to a household waste pit. Due to these sanitation practices, yards and water points get contaminated especially during the rainy season, easing the spread of cholera and diarrheal diseases. (Akatama 2008.)

Turku University of Applied Sciences (TUAS) has been working in Msunduzwa Township since 2004 with questions related to environmental health. TUAS students of Sustainable Development carried out a base line study to map the environmental health conditions, people's knowledge and development needs in Msunduzwa. Lack of adequate sanitation was revealed as one of the major environmental health challenges in the area. (Koivisto 2005.) In 2005 the study led to an initiation of the Environmental Health Education Project (EHEP) in cooperation with the Mbabane City Council to increase knowledge on environmental issues in the area by training local volunteers to educate communities and schools on environmental issues. In 2007 the Msunduzwa Dry Sanitation Project was launched as an independent project with a focus to emphasize the questions around sanitation and the possibilities of dry sanitation in particular. (Heikkilä & Kirstinä 2012.)

Msunduzwa Dry Sanitation Project was a joint development cooperation project between Turku University of Applied Sciences (TUAS), the Global Dry Toilet Association of Finland (GDTAF) and the Salvation Army of Swaziland. Other local partners were the City Council of Mbabane, University of Swaziland and Green Living Movement (GLM) Swaziland. The project was funded by the Ministry for Foreign Affairs of Finland (MFA). The project aimed to improve the sanitation hygiene in Msunduzwa by building composting dry toilets and by providing sanitation education in the community. The project promoted the use

of the end products (urine and composted manure) as soil enhancement and fertilizer in home gardening and landscaping, hence supporting the local food production among the poor households. In addition, other objectives of the project were to increase the community members' participation in the project activities and livelihood through income. (MDSP 2011.)

The Msunduza Dry Sanitation Project was implemented in three phases. The first phase of the project (2007-2008) focused on improving sanitation hygiene, increased and more efficient composting and home gardening, enhanced environment and enhanced women and youth rights. The second phase (2009-2011) focused on improving sanitation hygiene, increasing composting and home gardening, improving know-how of applicant and increasing livelihood and participation in the project area. The third phase of the project (2012-2013) focused on increasing the number of sanitation solutions, increasing composting and home gardening, sustaining the results, supporting the local ownership over the project and spreading the knowledge also outside of the project area. (MSDP 2006, 2008, 2011.)

The targeted direct beneficiaries for the project were the people living in the households with dry toilets. Some toilets are public and situated in the meeting points, sports grounds and the Msunduza Primary School. Altogether there were estimated to be approximately 260-500 dry toilet users, in addition 150 pupils in the schools, benefiting from the project. (Annual report 2012.) Other direct beneficiaries were the Sanitation Experts, a group who were employed to carry out implementation activities and educate the community on dry sanitation. All the educated community members were also put as beneficiaries benefiting from the sanitation and hygiene education. The local leaders of Msunduza were identified as a group of indirect beneficiaries. The leaders were seen as important cooperation partner throughout the project as their approval and perception on the project was essential for carrying out the project in the area. One small group of beneficiaries was the constructors, who were employed by the project. The local partner organizations can be identified as beneficiaries while gaining status, experience and knowledge when participating

in the project, as well as TUAS and GDTAF. The students of TUAS have benefited from the project by doing their practical training and gaining experience and knowledge. (Annual report 2012.)

3 THEORETICAL BACKGROUND OF EVALUATION

It was said somewhere that there are as many evaluations as there are evaluators. The evaluation plan also depends on the purpose of the evaluation. Therefore evaluation is a wide term including many perspectives to it. This chapter introduces the theoretical background of evaluation, not very profoundly, but finding the key points in evaluating development projects.

3.1 What is evaluation?

Dictionary definitions refer to evaluation as assessing the value, worth or merit of something, which is some kind of innovation, intervention, project or service (Robson 1999, 8-9). Evaluation always involves people in one or many ways, as the providers or clients of the service, or in setting up and running the intervention, or as participants in the innovation or project. It is common to call evaluation a program evaluation, by program meaning general term in referring to any of the activities above. (ibid.)

Evaluation is a periodic, objective assessment of a planned, ongoing or already completed project, program or policy. Evaluation answers specific questions related to design, implementation and results. Monitoring is a continuous, process that follows what is going on within a program using the collected data to inform the program implementation, management and decision-making. Evaluations are carried out at separate points of the program and they often look for an outside perspective, whereas monitoring is done continuously within the program implementation. (Gertler 2010.) Evaluation can be divided into summative and formative evaluation. Formative evaluation focuses on developing the program activities, typically in a new project, to help in adaptation in order to gain the desired objectives. (Robson 2001, 80-81.) These can be referred to the mid-term evaluations. Summative evaluation typically focuses on the impacts of the program, providing a final report which demonstrates the project achievements and the realization of objectives. Even

though the division is categorized, it is often useful to use some formative approaches in impact evaluation to find out the causes of possible failures. (ibid.) This can be referred to the final evaluation.

Evaluations can be categorized in many ways. One simple way is to divide evaluation into needs analysis, process evaluation, impact evaluation and cost-benefit analysis (Robson 2001, 77-78). Needs analysis, or needs assessment, is not really an evaluation in its term as it is an initial step in the program cycle and is carried out in the implementation planning phase to identify, prioritize and level the needs of the beneficiaries (Touwen 2001). Process evaluation focuses on how a program is implemented and functions, assessing whether it responds to its original design and documenting its development and operation. Process evaluations are usually quick and effective in pilot projects and in the initial stages of the program, and can be useful sources of information on how to improve the implementation. (Gertler 2010, 35.) Many organizations conduct yearly program evaluations, usually without the help of an external consultant, in order to review the project goals, strategies, work plans and possible problems (Touwen 2001). Impact evaluation focuses on the causal effects and the outcomes of the program. To be able to estimate the impact of a program the evaluation needs to research a target group and a comparison group in order to find out what would have the outcomes been for the participants if they had not participated in the program. Cost-benefit analysis, or cost-effective analysis, estimates the total expected benefits of a program, comparing them to the total expected costs. It seeks to quantify all of the costs and benefits of a program in monetary terms and assesses whether the benefits outweigh the costs. (Gertler 2010, 26; 29.)

The terms evaluation and research often overlap when conducting an evaluation. Social science research is often followed in evaluation, ensuring the reliability of findings and recommendations. One clear difference between evaluation and research is that evaluation as a term carries notions of assessing value with it, whereas research is traditionally seen with different activities of description, explanation and understanding. (Robson 1999, 22.)

When evaluating social work in practice, the evaluation is not limited to determining whether work is effective, but must be a means of empowerment and social change. It challenges social work to new understandings and new methodology, having a promise of keeping social work honest. (Lishman, Shaw 1999.)

3.2 Evaluating development projects

Finland's development project evaluation is committed to the principles, criteria and standards that have been jointly developed and agreed in the OECD/DAC (Development Co-operation Directorate) and the European Union. Therefore the Ministry for Foreign Affairs of Finland (MFA) uses the OECD/DAC definition of evaluation in their evaluation manual: *“Evaluation is a systematic and objective assessment of either an on-going or already completed development programme. An evaluation focuses on the programme’s design, implementation and its achievements. An evaluation should provide information that is credible and useful, enabling the incorporation of lessons learned into the decision-making process of both recipients and donors.”* (MFA 2013.)

Development evaluation has three main purposes. The first is to learn from the evaluation results in order to improve future development policy and programs. This learning can be achieved by systematic feedback and incorporating the lessons learned in project planning and implementation processes. The second purpose is accountability of the evaluation. It is accountable for the planning and implementation process and for the results and impact, including the provision of information and results to the public for continued commitment. The third is the purpose of evaluation process as a platform for dialogue amongst stakeholders. Finland's objective is that the officials and experts from partner countries and institutions have an increasingly active role in managing and implementing development evaluations. (MFA.) However, as participation is nowadays an everyday word in development rhetoric, it has extraordinary variation in meaning and range in understanding, easily resulting in conflicts

between organizations and individuals using the same term but different objectives (Harper 2001).

OECD and EU have defined guiding principles and standards for development evaluation. Evaluation should be impartial and independent in its function from the process concerned with the policy making, the delivery and the management of development assistance. The credibility of evaluation depends on the expertise and independence of the evaluators and the transparency of the evaluation process. The evaluation process should be open and the successes as well as failures should be reported, without compromising the sources when sharing relevant information to support findings. The findings should be seen as useful and relevant to have an impact on decision-making, they should reflect the different interests and needs of all stakeholders involved and the results should be easy to access for everyone. The stakeholders should participate in the evaluation process, as both donor and recipient participation is important and therefore the evaluation terms of reference should address issues of concerns to each partner, reflecting their views of the effectiveness and impacts of the concerned activities. Donor cooperation is encouraged in order to develop evaluation methods, to share reports and information, to improve access to evaluation findings and to avoid duplication of efforts. Evaluation should be programmed, which means an overall plan, setting up prioritized categories, together with a timetable. The most frequent type of evaluation is at the project or institutional level, but an evaluation on a more comprehensive scale and an aggregation of evaluation results is often needed to meet the demands of policy-makers and conflate studies of lessons learned. Institutional structure for managing evaluation is crucial in ensuring an effective evaluation process. The organizational aspects must address three requirements: developing a policy and a set of guidelines for evaluation; ensuring impartiality and independence; linking evaluation findings to future activities. (MFA.)

In development project evaluation, the process should be free, open and independent from the program management and policy-making. Evaluation

should abide by relevant professional and ethical guidelines and codes of conduct ethics for individual evaluators. Evaluators should respect human rights and differences in culture, customs, religious beliefs and practices of all stakeholders. In order to increase project ownership and build mutual accountability for results, a partnership approach to development evaluation should be systematically considered early in the process. To help improve coordination of development evaluation, the evaluation process should take into account national and local evaluation plans, activities and policies. Positive effects of the evaluation process on the evaluation capacity of development partners are emphasized, leading to a possible improvement in evaluation knowledge and skills, strengthening evaluation management, stimulating demand for and use of evaluation findings, and supporting an environment of accountability and learning. Quality control should be exercised throughout the evaluation process. (MFA.)

The OECD/DAC criteria for evaluation include six factors. *Relevance* focuses on problems and policy priorities, answering to the question of the objectives and achievements being consistent with the problems and priorities of the stakeholders, including the final beneficiaries. *Effectiveness* focuses on evaluating the achievement of the program's immediate objectives, answering to the question of the intervention achieving its purpose and the program results making a contribution towards reducing poverty. *Efficiency* focuses on value for money, other available resources and sound management, answering to the questions of the activities transforming the available resources into the intended outputs, in terms of quantity, quality and time, and of the quality of management, cooperation and communication. *Impact* focuses on evaluating the achievement of wider objectives, answering to the impact on final beneficiaries, for example, the lives of the poor through employment, access or empowerment. *Sustainability* focuses on evaluating the likely continuation of achievements, whether the benefits will be maintained after the termination of external support and what are the possible factors that enhance or inhibit sustainability, including ownership, economical, institutional, technical, socio-cultural and environmental aspects of sustainability. It also includes the question

of sustainable exit strategy of the external support. *Coherence* focuses on evaluating issues beyond development cooperation, for example, have contradictions with other policies prevented the implementation and achievement of the development objectives. (MFA.)

3.3 Approaches and methods in development evaluation

Finland's approach to development cooperation is based on human rights and it is developed by the United Nations Evaluation Group (UNEG). The objectives of Finnish development policy are poverty reduction, promotion of gender equality, reduction of inequalities and promotion of climate sustainability, hence the MFA promotes the integration of these cross-cutting objectives in all evaluation criteria. Finland's development policy also aims to ensure that evaluations are oriented towards the use of their results from the beginning. (MFA.)

Urgent issues, such as climate change, are calling for new approaches in evaluating sustainability compared to the traditional evaluation approach based on economics. As the development community calls for results, embracing the MDGs, the development evaluators are moving away from traditional implementation and output-focused evaluation models towards results-based evaluation models. (Morra-Imas 2009, 26-27.) The impacts are typically measured sometime after the completion of the project and impact evaluation is commonly used to assess the outcome of the project, whether or not a project achieved its goals and what impact the project had on its participants. The emphasis is on measuring the sustainability of the project. The scope of work should be agreed upon by the stakeholders, usually including donor agency, the international cooperating agency, the local project organization and the beneficiary community. (Touwen 2001.)

Impact evaluations require collecting and analyzing data, with an aim of objectivity. Several methods can be used, including case studies, cost-benefit analysis, rapid rural appraisal, or surveys. (Touwen 2001.) Rapid Rural Appraisal (RRA), is a series of participatory methods known as PRA,

Participatory Rural Appraisal, including also Participatory Learning and Action Plan (PLA), and can be used to show how local people can express, present and analyse their complex realities and in some cases also change the attitudes and beliefs of outsiders (Harper 2001). A participatory approach is more time consuming and complex, but it helps the local project organization gain more ownership of the results. It also gives different stakeholders a possibility to learn the process of evaluation by participating in it. (Touwen 2001.) This type of participatory approach evaluation also responds to the standards of Finnish development policy.

There are different tools for designing the evaluation. It is important to identify the research indicators all along the chain of results, not just at the level of outcomes, in order to track the causal logic of any findings. Even during impact evaluation the implementation indicators are important to track in order to define whether the interventions have been carried out as planned, whether the intended beneficiaries have been reached and whether it was done so on time. (Gertler 2010, 46.) Defining the evaluation questions is important in order to receive the needed data. One way is to group the questions into three categories: descriptive, normative and cause-and-effect questions. (Morra-Imas 2009, 248-253.) Descriptive questions seek to determine what is and to understand the program, describing aspects of a process, a condition, a set of views, or a set of organizational relationships. They can be used to describe for example opinions, inputs, activities and outputs. Normative questions compare what is with what should be, comparing the current situation with a specified target or a goal. They can be used to see for example quantitative results. Cause-and-effect questions seek to determine what difference an intervention makes, measuring what has changed because of the program. (ibid.) A logframe approach is a powerful tool for analyzing a project and helping in defining the questions. If a logframe has not been used in the project implementation, the analysis can be done using the existing project objectives and developing a logical framework matrix. (Jackson 1997.) An adapted version of different tools was used when designing the final evaluation of Msunduza Dry Sanitation Project.

4 EVALUATING MSUNDUZA DRY SANITATION PROJECT

The final evaluation of Msunduza Dry Sanitation Project is a summative evaluation, including formative aspects to it as the evaluation focuses on the impacts of the project. Impact evaluation in its terms was not possible to execute, as it is conducted sometime after the project is completed, focusing on sustainability. Impact evaluation also requires a comparison group, which was not included in the evaluation due to the resources and time. Nevertheless, the importance of evaluating sustainability was brought up by the project team when planning for the evaluation, hence following the methods of impact evaluation would have been apposite. The final evaluation report presents the project achievements and the realization of its objectives giving an overview to the causes and effects behind the project results and evaluating the impacts.

4.1 Objectives and indicators for the evaluation

The project objectives and desired outcomes were the base for designing the final evaluation. In the final phase the project had five direct objectives which all included directive qualitative and quantitative goals (Table 1.)

Table 1. The project objectives (MSDP 2011.)

1. Increased number of improved sanitation solutions in the project area	
Qualitative goals	<ul style="list-style-type: none"> • Knowledge on how to build an adequate toilet will improve and the leak/repair detection supported
Quantitative goals	<ul style="list-style-type: none"> • Sanitation Clubs will have 50 active members all together • Sanitation Clubs will have meetings every other week • Sanitation Clubs will have at least 4 workshops during the year 2012 and at least 2 in 2013 • Construction workshop will have 10 participants out of which 5 will start to build an improved toilet of their

	own
2. Increased knowledge on sanitation in different levels	
Qualitative goals	<ul style="list-style-type: none"> • Knowledge on dry toilet use and maintenance will increase • Knowledge on benefits of dry toilets will increase • Knowledge on hygiene and health will increase • Hiring the Field Coordinator will improve effective responses to problems in the field, fasten decision-making and support reporting to the project management
Quantitative goals	<ul style="list-style-type: none"> • The Sanitation Experts will reach at least 80 people monthly while educating community members of Msunduza • School Experts will visit all the schools of Msunduza during the year 2012 and at least 6 schools outside of Msunduza in 2013 • The School Experts will reach on average 50 pupils during each of their school visits • At least 25 people will participate in the courses organized and they represent at least 5 different sectors of professionals • There will be participation in at least two awareness campaigns, such as radio, local newspaper, leaflet or other to target users on the health benefits of dry sanitation.
3. Increased participation in the project area	
Qualitative goals	<ul style="list-style-type: none"> • Community participation will be increased through the Sanitation Clubs • Connections and dialogue between Msunduza and official authorities of Mbabane will be supported • Capacity building will be continued through various workshops and courses • Increased management, organizational and leadership skills of the members of community

	<ul style="list-style-type: none"> • Empowerment and participation of especially women and the youth • Participation of local leaders will be emphasized
Quantitative goals	<ul style="list-style-type: none"> • Sanitation Clubs will have at least 5 other educators or representatives from different sectors outside the Project • At least two persons will start an enterprise or small scale business in composting, gardening, toilet construction or other related to the Project • At least two representatives of the local leaders will be present in the workshops and courses organized • At least 10 of the 25 participants in the course organized will be women
4. Increased composting and home gardening in the project area	
Qualitative and quantitative goals	<ul style="list-style-type: none"> • Gardening and composting will be encouraged even in small plots • A gardening workshop will be organized especially for women with at least 15 female participants • The gardening competition will have minimum of ten contestants • Minimum of one written material or manual on each year will be produced and distributed to the community on gardening, composting and toilet maintenance
5. Enhanced sustainability of the project	
Qualitative goals	<ul style="list-style-type: none"> • Ascertain that the concept of dry sanitation is understood, the dry toilets properly used and in use as a whole, and the activities continued after the project funding ends • Sensitize the concept of dry sanitation to the City Council as a sustainable answer to sanitation challenges and food security • Stigma of the manure will be reduced and the benefits of the dry toilets better understood through the experiences gained during the Zambian exchange visit

Quantitative goals	<ul style="list-style-type: none"> • Sanitation and dry sanitation is included in the curricula of three schools. • An organization interested in the venture will participate in the course organized • Minimum of one written material or manual on each year will be produced and distributed to the community on gardening, composting and toilet maintenance.
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The final evaluation of Msunduza Dry Sanitation Project gives critical information on the implementation and the impacts of the project to the funder and all of the project stakeholders. Therefore the objective of the final evaluation was to evaluate the project implementation, the achievements, impacts and sustainability of Msunduza Dry Sanitation Project at the end of the project. The goals and the activities which were established in the project plan were reflected to the actualization in practice. The aim was to evaluate whether the mid-term evaluation recommendations, which were put to practice in form of different activities in order to reach the project goals, have affected as planned. In case of failures the aim was to research what were the factors, challenges and solutions in not succeeding in implementation and what are the impacts to the sustainability of the project.

The main objective of the evaluation was to answer the following main evaluation questions:

- Has the project achieved the goals which were established in the project plan? If not, why?
- Have the planned activities been implemented in the project? If not, why?
- What are the impacts of the project in different levels, for the target group and other stakeholders?
- Are the project achievements sustainable?

The indicators to be showing the answers to the evaluation questions were

drawn straight from the project plan where both qualitative and quantitative goals were set for the project. The quantitative indicators are:

- Education given by the Sanitation Experts
- Monitoring which has been on-going throughout the project
- Held workshops and participation numbers
- Existing Enviro Clubs and/or other groups and their activities
- The toilets in use
- Home and community gardening

The qualitative indicators are:

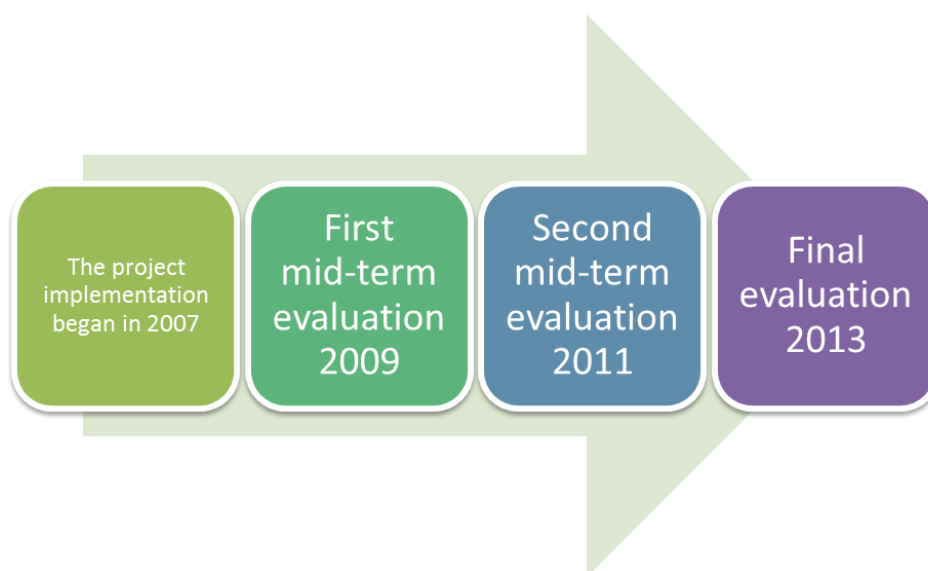
- Knowledge on sanitation practices
- Proper use and maintenance of the toilets
- Toilet construction processes
- Acceptance of the end products
- Knowledge on composting and the use of compost in gardening
- Ownership of the project at local level
- Communication and collaboration between the stakeholders
- Participation of different stakeholders for the project sustainability

The evaluation trip to Swaziland was conducted between October 9th and 29th 2013 as the project was due in the end of 2013. Therefore the project was still ongoing and activities were being implemented during the final evaluation. The evaluation schedule was planned ahead and sent via e-mail to the stakeholders together with the terms of reference (Appendix 1). The evaluation methods were not discussed further with the stakeholders, except communicating of the exact schedule of interviews and meetings.

4.2 Methodology

The final evaluation was based on integrated approach with participatory and qualitative methods, including also some quantitative analyzing when discussing the results. The former experience of the project from practical training in the spring 2013 was very helpful in understanding the project and designing the evaluation process. At the same time this also forced to take objectivity into very careful consideration.

A wide range of methods were chosen to collect the needed data for the evaluation due to the characteristics of the evaluation when required directive methods are not given by the project stakeholders and administration. As the project was implemented in three phases, two mid-term evaluations were conducted before the final evaluation (Picture 2).



Picture 2. The time frame of project implementation and evaluation.

Considering the project history, the implementation in three phases and the previously conducted mid-term evaluations, the methodology in the final evaluation followed similar lines to the mid-term evaluations with some added and deepened methods focusing on the impact evaluation.

4.2.1 Literary review

The project has produced a large number of reports and other documents. The two mid-term evaluation reports, the project plans and the annual project reports were analyzed and reflected when evaluating the project. There are several reports from the held workshops and courses, the ongoing monitoring as well as the student reports and diaries from their practical training in the project. Several bachelor theses involving the project are written by the students of TUAS and several publications are written within the project by the project management and the students. The results from the theses were also reflected in the final evaluation.

4.2.2 Interviews

Semi-structured interviews were planned using a framework approach, the questions based on the indicators and the objectives of the project evaluation (Appendix 2). The structure of the interviews was divided into themes and the questions were adapted for different stakeholders (Appendix 3). The starting point of the interviews was to give the interviewee time and space to explain one's answers and views of the project. Altogether 31 community members were interviewed individually; including 11 toilet owners or caretakers, six community leaders (excluding the group discussion with the Central Committee), seven Sanitation Experts, the field coordinator and six other community members, selected to be the neighbours of a household with a dry toilet. In summary, one leader and two toilet owners (one owner in Mntulwini as an exception) of each subzone of Msunduzi: Gobholo, Mcozini, Mncitsini, Maqobolwane, Corporation and Mntulwini. The sample of the toilet owners was one third (11/33) of all the dry toilets built by the project at the time of evaluation. Even though English is another official language of Swaziland together with siSwati, not all speak it fluently. Hence, most of the interviews among the community were carried out using an interpreter, the field coordinator Mr. Bheki Matambo Ngobese, who translated between siSwati and English. The project administration, management and partners were interviewed

individually without an interpreter. All the interviewees are listed in Appendix 4.

4.2.3 Group discussions

The Central Committee of Msunduza consisting of ten leaders was interviewed as a group using the field coordinator as an interpreter. A focus group discussion was held for the Sanitation Experts in English and the field coordinator was not present at the meeting to ensure the perspective of the experts. A focus group discussion is a semi-structured data gathering method in which a purposively selected participants get together to discuss issues and concerns based on the key themes drawn up by the evaluator or facilitator (Kumar 1987).

4.2.4 SWOT analysis

All interviews were carried out including a SWOT analysis from each interviewee (Appendix 5). By SWOT analysis as a participatory method, the strengths, weaknesses, opportunities and threats of the project could be explored equally from each stakeholder's point of view. The SWOT analysis can be used to test the completeness of the project goals. Strengths and weaknesses advert to the strengths and weaknesses in the project. Opportunities and threats advert to the opportunities for and the threats to the project achieving its goals. (Jackson 1997.)

4.2.5 Higher-level course on dry sanitation

"A Higher-Level Course on Dry Sanitation – Experiences and prospects of sustainability" was held in Mbabane on October 16-22. An evaluation activity based on scoring and ranking was conducted during the course with a help of facilitator Mr. Emmanuel Mutamba (Appendix 6). The participants were divided into following groups: Sanitation Experts, Msunduza leaders, Msunduza Environmental Association and the youth, local NGOs, Ministry of Health and

City Council. Each group identified at least five key achievements and five key challenges that the Msunduza Dry Sanitation Project has faced. After the identification each individual scored each parameter (achievement and challenge) with a scale of 1-10. The total sum of scores of each parameter then showed the place in the ranking giving the scale of the most important achievements and the most important challenges that the project has faced according to each group.

4.2.6 Field walks and direct observation

Plenty of observation was made during the field walks as most of the interviews were made at the households of the community. Each interviewed owner's toilet was also monitored during or after the interview and discussions usually carried further from there. Some other toilets were also monitored during the field walks to be sure that in the end of the evaluation trip there was a good understanding of the state of the built dry toilets and of the toilet beneficiaries' experience in each subzone and the whole community of Msunduza.

4.3 Evaluation limitations, objectivity and validity

It is common that the evaluations are conducted as a team, depending on the size and scope of the project and its evaluation. Although the project management was involved in the planning phase of the evaluation, the final evaluation was put into practice by one person only, which limited the resources of knowledge, experience and perspective to a single individual in the completion of the evaluation. Usually the evaluator is someone outside the project to ensure an impartial and independent evaluation. As a student of TUAS and a former intern in the Msunduza Dry Sanitation Project, the project, its stakeholders and people were familiar to the evaluator from the spring 2013, and this raised some questions about objectivity among the stakeholders. Nevertheless, the subject was discussed with the project management before the evaluation and it was also seen as a positive aspect in understanding the

project. In addition, the evaluator has not been in a decision-making role in the project, but only attending activities of the project for three months. At the same time this situation enforced to take objectivity into very careful consideration during the evaluation process. The aim was to carry out the interviews openly and without bias for each stakeholder and objectivity was considered throughout the evaluation process.

The validity of the research results is equal to the methods, approach and sample used in the evaluation. The only criteria for the selection of interviewed toilet owners was that they were from the diverse subzones of Msunduzi and different from those who were interviewed in the spring 2013 by Anni Salla who was writing a bachelor's thesis on sustainability of the Msunduzi Dry Sanitation Project. The sample of the owners for the final evaluation consisted of one third of the toilet owners at the time of evaluation, thus it did not represent even a half of the group of beneficiaries of the project. On the other hand, the sample group was rather diverse and it seemed to represent the range of the beneficiaries well.

Language limitations may have effects on validity of the answers. Also, using the field coordinator of the project as an interpreter in the interviews may have both positive and negative effects on the answers. First, the field coordinator as a person is appreciated and trusted in the community, thus the community members tend to answer honestly as to a friend, which lowers the risk that the interviewee gives a biased answer of the real situation. Secondly, when not using professional interpreters, the message may alter slightly in the translation process. Especially as the field coordinator is highly involved in the project, he may have explained the message from his aspect during translation. This was discussed before the interviews were conducted to ensure objectivity. To increase objectivity and honesty during the interviews, defining questions were asked if required together with direct observation by the evaluator.

5 RESEARCH RESULTS

The research results base on all the conducted interviews, the SWOT analysis, the scoring and ranking activity, the findings at the community level, the annual project reports and other literary reviews. The mid-term evaluations are reflected in the results in respective parts to see the possible changes and reforms in the project implementation. The results are divided into the project objectives and the specific indicators, presented in section 4.1, are applied in analyzing the objectives.

5.1 Improved sanitation solutions in the project area

The objective of *Increased number of improved sanitation solutions in the project area* focuses on increasing both the number of built and repaired toilets that are hygienic to use and safe for the environment and the user. It includes the objectives of knowledge on building and repairing a dry toilet. It also includes the objective of active Sanitation Clubs in order to help the community to continue the dry sanitation activities. (MDSP 2011.)

5.1.1 The toilets in use

During the evaluation trip there were 33 toilets built by the project in the Msunduza area. The seven Sanitation Experts were in the process of building their toilets and some other toilets were still to be constructed as the number of toilets had been increased from the original 40 due to lowering the construction costs by household contribution and local materials.

Out of the 11 dry toilets of which owners or caretakers were interviewed, three (3/11) were properly used and functioning well according to the principles of dry toilets. Four (4/11) toilets were in use but had such problems that the composting process was not ongoing or the toilet needs fixing before it can be

properly used, e.g. the compost chamber was leaking and letting rainwater in, excess newspapers in the chamber, the urine container was missing. Three (3/11) toilets lacked caretaking and therefore were completely misused, e.g. dry substances were not in use and the urine separation was blocked. One toilet was completely closed since 1,5 years due to a broken mechanism and later a death of the owner. 13 other toilets in addition to those of which owners or caretakers were interviewed were monitored. Three (3/13) out of these at households were in proper use. One (1/13) was not in use due to a missing key, instead pit latrine next to the composting dry toilet was used. Nine (9/13) were public toilets including the meeting point toilets, the toilets in the sports grounds and the toilets in the Msunduza Primary School. All these public toilets were mainly not in use, the most common reasons being vandalism and inadequate caretaking. Mntulwini and Mncotzini meeting point toilets were in use, but not actively due to the issues with the toilets; the caretaker of Mntulwini toilet was often not available to open the door and the door lock of Mncotzini toilet was stuck.

In conclusion, many toilets seemed to need better maintaining, caretaking and some repairing. Compared with the mid-term evaluation report from the second phase (2011), by when 29 toilets had been built, the state of the toilets was similar with some improvements made and some drawbacks raised. The drawbacks seemed to be in larger quantity with the public toilets.

5.1.2 Toilet construction

The local coordinator Captain of the Salvation Army in collaboration with the project manager was responsible for overseeing and drawing the agreements of toilet construction. The City Council of Mbabane is the respective authority to approve the building permits and to define and inspect the toilet structures.

The project provided different types of toilets to the Msunduza community as the models were tested and developed during the project implementation. The

first model was built at Maqobolwane, where the implementation began in 2007. This model is a dry toilet without urine separation and the compost chambers lie flat behind the toilet with a heavy concrete lid. The chambers in this model are hard to open and empty, thus in the mid-term evaluation reports the recommendation was to replace the lids. The repairs remained to be undone during the final evaluation, although some small repairs had been done to the toilets. This may be due to the model was later not accepted by the Mbabane City Council and Enviroloo was introduced in 2008. The problems with Enviroloo type of toilet revealed that as a manufactured model, it is quite expensive, the spare parts may not be available and at the same time it leaves out the possibilities to utilize the local skills and capacity to construct and maintain the toilets within the community. The first model of a dry toilet was improved with a urine separating system and the compost chambers were positioned to the bottom structure. This model was experienced to be adequate, approved by the City Council and it has been the model used since. Some changes have been made since in the top structure materials, to find the best in the climate and locally affordable, as the City Council requires only the bottom structure to be standard.

By observation and according to the interviews, some differences were seen in the quality of construction throughout the project. This was also noticed in the mid-term evaluations and annual reports and there has been improvement in the toilet construction all along the project. The four new toilets built during the final phase showed improvement in the quality and structures. According to the interviews, still some suggestions for improvement exist, especially in the toilet seat and the urine separation system. Many female find the seat with the urine separation somewhat uncomfortable to use. Some toilet seats are too low according to the users. In some toilets, the steps are too large and without a railing the elderly can find it hard to climb them. Through observation and discussions it became clear that it is very important to the constructor to understand the principles of dry toilet, especially in order to build a functioning, user-friendly seat with a urine separation. Unfortunately the constructors were

not interviewed in the final evaluation, but obviously education of constructors is important in the dry sanitation projects to ensure quality in construction. The project had some difficulties in finding several applicable constructors with moderate costs. The quality of construction also affects the user experience and the proper use of a toilet, hence some toilets actually may be unused due to the flaws in construction.

A construction monitoring team consisting of three Sanitation Experts and a student assistant from TUAS was formed in the final phase to monitor the process of construction and the use of material as there had been misuse of the excess materials. The team was active while the student assistant was working, but after her leaving, the team did not complete their expected task and adequate reports of construction were not returned. The team was dissolved by the Sanitation Experts chairperson due to some conflicts, finding the team useless as they for some unspecified reason did not have authority to do their job.

A construction workshop was held in the spring 2013, exceeding its goal of participants. Contrary to the plan, the toilet constructors were not present to facilitate in the workshop, hence the program was found rather inefficient. The expected outcome of the workshop was at least five participants to start toilet construction on their own, but this goal was not met as none did so. Positively, one interviewed toilet owner was very keen on educating others on construction and had been monitoring his toilet construction very carefully, having got ideas how to improve the toilets and what to consider when building. In addition, one household in Gobholo built a composting dry toilet outside the project in 2013 and before the construction they had visited the Recycling Centre toilet to see the model and ask for more information.

5.1.3 Sanitation Clubs

One project objective was to implement Sanitation Clubs, later revised to Enviro

Clubs, to increase active community participation around the dry sanitation activities and the sustainability of the project. The goal was to have 50 active members all together, club meetings held every other week and have at least five other educators or representatives to visit the meetings from different sectors outside the project. In the project plan (2011), the Enviro Clubs were to be established in cooperation with EHEP, another project working in the area, in which the City Council is an official partner and implementer. A Reuse group, focusing on handicrafts using recycled materials, was formed by EHEP. The plan was that by working with the local authority in club implementation, sustaining the results would be supported. (MDSP 2011.)

However, the City Council did not participate in the implementation of the Enviro Clubs focusing on sanitation. The Sanitation Experts had a significant role in implementing and sensitizing the idea of the clubs for the community, supported by the student assistant in the beginning. The main target group was the toilet owners but according to the Sanitation Experts not many were interested in taking part due to different reasons, e.g. volunteerism, time and doubt. Also it is worth taking into account, that many of the toilet owners are very poor, elderly, illiterate and disabled, hence the possibilities for activities can be scarce for them. Another target group was the youth, as their mobilization was one objective in the project. In the end, the formed clubs were multisectoral including youth, elderly, the reuse group and people interested in gardening. According to the interviews, it seemed that together with the doubts about the purpose and benefits of the clubs, the club activities and the objectives were unclear to the target groups causing misunderstandings among the community and the Sanitation Experts as well. According to the field coordinator, the implementation of Enviro Clubs should have been introduced in the beginning of the project to avoid turbulence in the final phase of the project. In the interviews, many owners told to have heard about the clubs only once, but at the same time they showed interest in attending meetings if such were organized and time was right.

Some clubs were formed already during the first and second phase of the project in Mncitsini and Corporation concentrating mainly on community gardening. (Mid-term evaluation reports 2009 & 2011.), and in the final phase a club in Mncozini had some monthly gardening activities. However, during the final evaluation, the club activities, members and constitution were somewhat undefined. The change of community committee affected the club activities in Corporation, as since then there has been lack of participation of the leaders in the project activities. Also the Mncitsini youth club struggled, problem being inadequate land for the gardening given to the club by the leaders. This shows that the community leaders' active participation and support to the clubs in terms of adequate land and other resources is one important factor in the implementation and sustainability of the clubs. The clubs seemed to need more structures and consistency, whereas the Sanitation Experts did not have the capacity to implement them. More capacity of the leaders and other key community members would have been needed. Also, the City Council's participation in the club implementation could have been important.

At the time of the evaluation active clubs did not exist due to the difficulties in implementation, but instead Msunduza Environmental Association (MEA) had been brought up by the field coordinator in the spring 2013 as a top-down approach – an umbrella organization under which the Enviro Clubs would function – to the implementation of local structures to enhance the project activities and sustainability in the final phase. At the time of the evaluation, MEA was still in a phase of establishment and defining the final constitution, but the plan was to continue the project activities. MEA includes members of the Sanitation Experts, toilet owners, community leaders, youth and others interested. The next plan was to report the outcomes from the Higher level course and the constitution to the Central Committee of Msunduza. Other plans included weekly meetings, defining a strategic and activity plan for the year 2014, informing the community about the association and joining the Swaziland WASH (water, sanitation and hygiene) forum. MEA has potential for accomplishing the needed structures for the continuation of the project activities

at least at some level in the community.

5.2 Knowledge on sanitation in different levels

The objective of *Increased knowledge on sanitation in different levels* focuses on information and knowledge created in individual, project organization and national level. The individuals in the community need education on safe sanitation, on gardening, composting and dry toilet construction, for example. Organizational level refers to the experience and knowledge, which the implementing partners gain from the project and can be disseminated further to wider audience. On national level operates the stakeholders, who get training on sustainable sanitation systems through the project. (MDSP 2011.)

5.2.1 Education

Sanitation Experts

A lot of education was given in the project overall and the project has met this objective in quantity. The Sanitation Experts were trained on sanitation issues by TUAS from the beginning of their work. The number of active Sanitation Experts varied from 7-10 during the seven years of the project and they were given a significant role in the project educating the community and actualizing the project activities. At the end of the project there were seven active Sanitation Experts. According to the interviews, all these experts are very content with the education received and they have gained a lot of skills and knowledge on dry sanitation, project implementation and social skills as well as important social network in their own community. The experts ranked their knowledge and gained leadership skills as number one in the project achievements. Many of the Sanitation Experts would like to continue to learn and they wished for more education on community mobilization, leadership skills and composting, for instance.

Education at households and community meetings

Throughout the project, the Msunduza residents received sanitation and hygiene education mainly through the Sanitation Experts, who educated the community members using two methods, by visiting the households with a dry toilet and at the community meetings in the public meeting places. The objective of monthly education of at least 80 community members by Sanitation Experts was exceeded. Altogether the experts gave education approximately 40 hours in a month each and annually to 5 000-20 000 community members and pupils at schools depending on the year. (Annual reports 2007, 2008, 2009, 2010, 2011 and 2012.) Some experts had not educated at the mass meetings at all nor often, due to the meetings were not held at all in their respective subzone or they were not given opportunity to educate. According to the experts, both education methods are important, but they found easier and more effective to educate at the household level where more time was given for the questions and due to the fact that not all community members attend the community meetings. The time given to the experts for education at the community meetings was limited to a very short 10-15 minutes period every now and then, approximately mass meetings are held three times a year, at some subzones not at all. In addition, the politics affected the project activities as community meetings were not allowed for several months during the final year of the project due to the upcoming national elections. On the other hand, education at the community meetings reaches the community at large and raises public awareness aiming for the correct use of the public toilets and therefore should not be undervalued.

Workshops

Several workshops were organized during the project facilitated by the students of TUAS, Sanitation Experts, the project management and GLM. GLM Swaziland was established in synergy with the Msunduza Dry Sanitation Project and a separate capacity programme facilitated by GLM Swaziland was launched in 2012. The number of workshops varied annually including subjects

of dry sanitation, health and hygiene, organic gardening and permaculture, leadership skills, conflict management and project management and implementation. From the beginning the workshops were targeted to the users of dry toilets, the Sanitation Experts, the community leaders and other community members with the aim of giving tools and capacity to the community to continue and sustain the project activities but also to improve the opportunities to find work in the future after the project has ended. (Annual report 2009.) Hence, the project included education as a major factor in increasing sustainability already in the first and second phases. Throughout the project, the participant numbers in workshops have been good and the goal of people reached.

Education and knowledge in the final phase

In the final phase, several workshops were organized including subjects of health and hygiene, dry toilet use and maintenance, gardening, composting, use of the end products, toilet construction and community Enviro Clubs. The number of participants varied between an average of 30-70 including toilet owners and users, Sanitation Experts, community leaders, other community members and some visitors from other communities and organizations as well. The objective of emphasis on gender was met as the participation number of women was generally high. In 2012 Sanitation Experts educated approximately 1400 people in a month, out of which 800 women. (Annual report 2012.)

One of the objectives was to educate the pupils at primary and high schools. The objective of visiting all eight schools in Msunduza in 2012 was only partly met as three visits were conducted by the Sanitation Experts and the students of TUAS. According to the responsible School Expert, she visited the Msunduza Primary School twice in 2013 with approximately 190 girls and 150 boys each time at the morning assembly. Hence, the objective of six school visits outside Msunduza in 2013 was not met but the objective of average 50 pupils targeted was. The education usually included waste management, dry sanitation, composting and behavioural change. The schools have gardens and Enviro

Clubs have been launched in four schools, but more education and continuous activities are needed. The Sanitation Experts' focus was not in school education in the final year and the task was left for the responsible School Expert who did not have time and resources to accomplish it.

5.2.2 Knowledge at the community level

Two separate studies have been made by TUAS students assessing the people's knowledge and attitudes towards dry sanitation. The first study was carried out in 2008-2009 and the second in 2011. Although two subsequent studies were not entirely comparable, some trends were found by comparing the studies, allowing the assessment of the impacts of education in the project. The results of the first study indicated that people had difficulties in understanding the concept of dry sanitation and the connection between sanitation, environment and health, or that they did not perceive them important. The results of the second study implied some impacts of education. The concept was better known and the dry toilets and the use of human manure were more accepted. Knowledge about the link between sanitation and health had improved as the connection between good sanitation and health was better known and people were able to list important aspects which can pose health concerns. The interviewees valued their dry toilets and were motivated to receive more education although some negative attitudes still existed. The study showed that Sanitation Experts had influenced people in taking care of the toilets, motivating them to have interest towards safer sanitation practices. (Heikkilä & Kirstinä 2012.)

The final evaluation did not focus entirely on the impacts of education, but the theme was substantially there when assessing the toilet owners', leaders' and entire community's knowledge and capacity to sustain their sanitation practices. The state of the toilets and the current sanitation practices indicate the level of knowledge in practice and the effectiveness of education. As presented in the chapter 5.1.1 the state of the public toilets was tolerable and the interviewed

household toilets somewhat acceptable; out of 11 household toilets, three (3/11) being used properly, four (4/11) being misused or not in use and four (4/11) having some issues. Many users had problems in the proper use and maintenance of the toilets. The interviews showed that there were problems with the toilets especially when there were tenants or a big number of family members in the households. In these households, the beneficiaries were not committed to the proper use of the toilets and the users seemed to lack education. In some cases, even if the owner or caretaker knew how to use and maintain the toilet, the other household members, tenants or visitors were not aware of the principles and there were difficulties in educating them. According to the interviews, the toilet beneficiaries who had misused the toilet seemed not to understand the full benefits and the principles of the composting dry toilet, or they were not even interested in them at all. Some toilets were used as regular pit latrines without using dry substances, which also leads to a question of safety and sustainability as the owners had no further plan what to do with the toilet once it is full.

A very successful example of a well-maintained toilet (built in 2013) showed the following factors which lead to good ownership: the owner participated actively in the workshops and meetings; he had monitored the construction process of his toilet contributing his time and resources, such as cement and water, towards building; the owner had bought a truckload of sawdust to be used as dry substances in the toilet; the whole family takes part in taking care of the toilet and everyone including children has been educated. The owner also speaks for toilet owners' commitment, activity and participation and the discipline of community towards the proper use of the toilets and is willing to teach other people in construction.

All interviewed toilet owners and caretakers stated improvement in sanitation situation and hygiene in their families. Many household members were forced to use bushes, flying toilets, neighbors' toilets and other ways for defecation before the built dry toilets. Some used to have pit latrines, but possibilities for digging them were scarce. In the mid-term evaluation 2011, placing hand washing

devices was suggested in majority of the dry toilets and the continuation of the basic hygiene education for the households was recommended. The final evaluation interviews showed that even if the knowledge on the importance of sanitation hygiene and practices was increased, still the hand washing facilities were somewhat inadequate. Only one household had an actual hand washing device next to the toilet, which was recommended in the mid-term evaluation 2011. However, many had a water tap on the yard, near or far from the toilet, and some used a water basin inside the house.

The interviewed toilet owners and caretakers were happy about the received education. Some had been educated only at the household level whereas some attended the workshops and meetings actively. The mid-term evaluations indicated that some beneficiaries wanted the Sanitation Experts to maintain the dry toilets and the experts also listed this as a weakness of the project. This was not shown in the interviews. Majority wished for continuous education and some mentioned that the public should be educated more, but it seemed that the job of the Sanitation Experts as educators, not caretakers, was understood. Especially those who possessed positive attitude towards the use of end products wished for more education on composting and using and applying the end products in gardening. According to the Sanitation Experts, the sanitation situation has improved and is improving due to the project yet more education is still needed. In conclusion, somewhat a similar situation to the study in 2011 could be seen during the final evaluation. While the attitude towards dry sanitation was mainly positive and the knowledge of good sanitation practices seemed to be there, there were some difficulties in maintaining the dry toilets and the proper sanitation practices.

5.2.3 Knowledge at the organizational and national level

One of the objectives was to increase knowledge in different levels. In 2012 and in 2013 a Higher-level course was organized to discuss future prospective and a way forward for dry sanitation and the Msunduzi Dry Sanitation Project and to

disseminate knowledge on dry sanitation to areas outside of Msunduza, including different actors of the field. The course had approximately 50 participants in 2012 and 54 in 2013 with representatives from the Salvation Army, the City Council, UNISWA, TUAS, local NGOs, Ministry of Health, the dry toilet owners, the local leaders, the Sanitation Experts and other community members from Msunduza. The goals of participation numbers enhancing gender were met. In 2012, awareness was raised also by organizing a Msunduza Information Day for all the residents. The Environmental Health Student Association and AMICAALL, organization involved in HIV/AIDS issues, took part in the day as well. In 2013, dry sanitation was presented at the Mbabane Towards a Green City event organized by the City Council, where the Sanitation Experts and students of TUAS shared information demonstrating the dry composting toilet model to the visitors, including authorities such as Ministry of Swaziland. Some articles about Msunduza Dry Sanitation project have been also published in the national AgriBusiness magazine and the Times of Swaziland newspaper. Overall, the project had success in increasing knowledge in all levels and the goal of participation in at least two awareness campaigns was met.

In the final evaluation interview, the Senior health inspector Ms. Ellen Matsenwja from the City Council, who also represents the council in the Msunduza Dry Sanitation Project, stated the introduction of dry sanitation as the strength of the project. According to her, the international support and full support of practices have led to the opportunity for dry sanitation methods to be tested and supported in Swaziland at the same time responding to the challenges of global warming, future sanitation needs and water scarcity.

In the final evaluation interview, Captain Nhlanhla Ziqubu of the Salvation Army saw as an opportunity to expand the project to other communities and other community members to visit the project area and see the work done. There was a plan of constructing a dry toilet to another Salvation Army facility outside Msunduza. According to the Captain, the project enabled Salvation Army to know more about the community of Msunduza and the families who are

benefiting from the project, which complements with the work that Salvation Army is doing in the community.

Two professors of University of Swaziland stated there has been sharing of knowledge between the university and the project throughout the project. The environmental health students have benefited from visiting the project area and learning about dry sanitation as well as the professors have contributed to the High level courses giving presentations and professional view on the project and dry sanitation.

Other organizations and institutions have been introduced to dry sanitation and its benefits as well, opening a discussion about the future sanitation in Swaziland. The ranking activity showed that the Ministry of Health Department ranked the implementation of recycling practices, saving of land and water, improvement in the health standards by educating the Sanitation Experts and promotion of organic gardening as key achievements of the project. The local NGO's ranked the dry toilet as major key achievement, a model that is long-lasting and convenient compared to the pit latrines.

5.3 Participation in the project area

The objective of *Increased participation in the project area* is strongly linked with prevailing attitudes in the community which the project wanted to enhance: to respect ones neighbors and to respect and take care of the common facilities, such as toilets on meeting places and sports grounds. With this objective the project aimed to increase the community members' activity in the dry sanitation activities and taking care of their living environment. The objective includes the activity of the Sanitation Clubs, the continuation of capacity building and increased skills of the local community as well as empowerment of women and youth. Participation of the local leaders was emphasized as well as communication between Msunduzi and the official authorities of Mbabane (MDSP 2011).

5.3.1 Capacity building

The need for capacity building was highlighted in the 2011 mid-term evaluation and a strategy for better participatory techniques, enhancing local skills and including more women in the activities was recommended. In order to increase the participatory methods and community participation the project educated the community in cooperation with GLM Swaziland and a capacity building program was launched separately but in synergy with the project. Several workshop periods were implemented in the final phase including a wide range of topics such as leadership skills, conflict management, project management, project evaluation and fund-raising.

According to the GLM program facilitator, the objectives of this education were fairly achieved and to a larger extent the workshops were attended mostly by the same people - the Sanitation Experts and some community leaders - not many ordinary community members. The expectation was that the experts and the leader participants would be training other community members through the Enviro Clubs in their respective sections, but this was not fully met due to the non-existent structures of the Enviro Clubs. The Msunduza Environmental Association (MEA) seems to be in a key role in continuing the education in the community and positively, many of the MEA members have participated in the workshops. The Sanitation Experts stated the capacity building program, training, skills and knowledge among the incentives and their toilets as their benefits of the project. During the final evaluation group discussion, it was surprising that the Central Committee of Msunduza asked for more information on GLM Swaziland, saying that they do not know anything about the organization. This led to reflections of the leadership's role in the capacity building within their own community and the capacity of the local leaders not being enhanced enough, for by doing so also their respective communities could possibly gain better capacity. At the end of the project, it seems that the community in entirety does not have the full capacity, clear structures and common goals to work together towards maintenance of the toilets and

development of the sanitation situation in the area.

5.3.2 Community participation

Along the project there has been a struggle with the poor community participation and ownership of the project. (Mid-term evaluation reports 2009 & 2011). The interviews showed that the poor ownership and community participation are yet problems in the project on all levels from the households to the leadership, especially in volunteerism and active participation in activities outside the workshops and education, for example, the Enviro Clubs. The interviews brought up that the community participation in Msunduza comes with incentives, such as allowances and food, and not knowledge alone. Also time was stated as limitation; especially many toilet owners said that they do not have time to attend meetings.

Volunteerism has been an issue for many and the term was told to be rather unknown for people. Commitment and volunteerism have been issues even to the Sanitation Experts, who have received financial incentives monthly. The experts were educated on community development along the project but still the attitudes did not necessarily show the spirit of common goals and participation even for the team itself. This was seen, for example, when the process of building the dry toilets for the group of Sanitation Experts as a team work was not contrived. Some attitude and commitment issues towards new tasks among the experts could be seen by the coordinators. Some project activities were performed poorly and consuming excess time, as the team could not agree on the common terms amongst them. As the experts were used to getting the incentives regularly for the same work, they had some difficulties in accepting new challenges and ideas for project development. While some of the experts took their work as community development, some took their work as any paid job.

Some Sanitation Experts changed during the project implementation. The

project management (2010) noticed this to have affected to the group's motivation. Especially, when instead of paying attention to the motivation of working as an expert, the new Sanitation Experts were appointed by the Central Committee. Recruiting new members also demands time and training. The new experts did not get enough information about sanitation in the first place to be ready to face all questions people might ask from them. (Annual report 2010.) As a conclusion, it is very important that the selected Sanitation Experts are motivated and community development -orientated, knowing what is their expected role and contribution in the project implementation. This was not taken into consideration enough when hiring the experts for the project. Experts' work could have been monitored more closely by the Salvation Army as well instead of simply at the administrative level.

The leaders' participation on the project seemed to vary between the subzones, in some they were working closely with the Sanitation Experts and supporting and participating in the project actively, whereas in some, the leaders did not participate actively, or not at all, and the communication was poor. The project management highly appreciated the local leaders' involvement, increasingly taking part in the workshops and the meetings towards the end of the project. Leaders' participation was enhanced in the final phase of the project in order to gain local ownership. However it seems that working towards a common goal to develop the community is not easy task for the Msunduzi community. Internal frictions existed within the community and it seems to root from the ongoing politics and the difficult status of the community in the peri-urban area of Mbabane.

The Central Committee saw the community leaders' role as the speakers about the benefits of the toilets before the Sanitation Experts, encouraging people to use the dry toilets properly. According to the Central Committee the leaders work together with the Sanitation Experts, who report regularly about the dry toilets in order to know about misuse and to take action. Hence, the role of the leaders was mainly about overseeing the proper toilet use together with

selecting the households to receive a dry toilet. Not all the leaders participated actively in the workshops and education. The Central Committee told that instead of all the leaders, one was always dedicated to attend to present the leaders. Some of the interviewed leaders had never attended the workshops and they also were not aware of the Enviro Clubs. Although the leaders' role was important, especially in the final phase of the project, the leadership's remained more in decision-making in the meetings based on the project team's suggestions and requests, rather than participatory in the project activities, which for example the Sanitation Experts wished for. Not many leaders have a dry toilet of their own and the experience of the dry toilets seem to originate from the owners and the Sanitation Experts. More leaders' involvement in the practical activities could have helped the whole community to participate more, leading to all of the leaders to understand the deeper objectives of community development. It seemed that the leaders were not actively participating in increasing the capacity and participation of the community.

5.3.3 Collaboration between the stakeholders

It was noted in the mid-term evaluation 2011, that a top-down decision-making method was used in the project, whereas in order to the community to participate, a participatory project management should be institutionalized in all levels, the local leadership, the Sanitation Experts, the Salvation Army and the City Council. Better communication between the stakeholders was recommended as well as a position of a field coordinator. As recommended, a field coordinator was hired in the final phase to support reporting to the project management, to assist the local project coordinator, to improve effective responses to problems in the field and to fasten decision-making. The Msunduza leadership was also brought more into the decision-making. (MDSP 2011.)

The final interviews showed that yet there were frictions between the stakeholders at the end of the project and the communication was not smooth.

Internal conflicts and frictions together with the politics seem to have affected the project all along, having arisen constantly causing misunderstanding and delay in the progress. The City Council representative stated that the City Council does not recognize the current Central Committee of Msunduza and therefore the City Council does not cooperate with the leadership of Msunduza, only with the Salvation Army. The project management has been aware of the situation and has tried to collaborate with different stakeholders. Nevertheless, during the final evaluation, the Captain of Salvation Army stated that he was not aware of the ongoing conflict between the City Council and the Central Committee of Msunduza. Also, the Central Committee was surprised of the issue arising as they were willing to cooperate with the City Council. This complex situation of politics has caused frictions in the project implementation all along, but there was little the project management could do about the situation.

According to the project manager, communication with the City Council has been challenging throughout the project. These challenges were also noted in the mid-term evaluations. The project management wished for more participation and commitment from the local stakeholders. Personalization of many issues hindered the project development as, for example, the City Council was practically represented only by one person throughout the project implementation, leading to varying participation and interest towards the project. Fluent cooperation with the City Council was found hard in the final phase also for the field coordinator and sometimes for the Sanitation Experts, as well as the TUAS students experienced difficulties in cooperation during their work practice.

The City Council representative saw the NGO based implementation as weakness and stated that the clear lines of reporting and defined roles and responsibilities for the different stakeholders were missing. The City Council was not actively participating in the project implementation from the beginning and it was only during the first mid-term evaluation when the representatives of the City Council and the Salvation Army collaborated for the first time, hence it

seems that there was a lack of cooperation, clearly defined responsibilities and forms of participation from the beginning. Both stakeholders stated to have a good collaboration, but regular meetings and discussions were not held. The current Captain of Salvation Army saw it necessary to meet with the City Council only if there was something urgent rising from the project reports. Therefore the cooperation seemed to be more problem-based than constructive and active. The interviews also brought up that both partner representatives of the City Council and the Salvation Army were very busy in their work, leaving the active participation in the project rather low. For example, the representatives of the project partners rarely attended the workshops and the weekly Sanitation Experts' meetings where the project activities and planning were discussed. The project manager wished for more active participation of the local stakeholders in the project activities. By active participation, especially the Salvation Army could have showed example of local commitment for the Sanitation Experts, who at times had motivational challenges. Throughout the project, the Salvation Army communicated mainly with the project manager in Finland and this communication was constant and fluent.

The Sanitation Experts had very significant role in the project as local educators and as a team actualizing the implementation activities. They however did not feel involved enough, but felt left out as a group both from the Salvation Army and the field coordinator. The experts did not feel welcome to the Salvation Army and according to them, lack of stationary for the group caused practical problems. In Sanitation Experts' opinion, the local coordinator did not have enough power in administration and this lead to constant consulting to Finland to the project manager, which delayed processes. The field coordinator as well was constantly consulting Finland and the decisions were brought up to the meetings, whereas the experts would have liked more transparency and to be part of the planning of the project. The experts also stated that they were not informed about the objectives and the achievements each year and would have liked to take part in the project planning from the beginning and get more follow-up on the project. Positively, this shows that the experts have learned about

project implementation and participatory approach. On the other hand, the project management and local coordinators stated some motivational challenges in Sanitation Experts' work. Efficiency of their work was also on a question. Many meeting minutes showed that the experts were spending time in discussing insignificant matters while the field coordinator tried to bring in the planning for activities and other important project implementation issues. As the experts were disappointed that the City Council representatives did not attend their weekly meetings unlike supposed to, participation of the local stakeholders in the weekly meetings could have also increased experts' efficiency and motivation.

The field coordinator was put in the position in the final phase, for narrowing the communication gap and communicating straight with the project manager in Finland in order to gain progress in the project implementation. This was seen as inadequate lines of reporting and poor communication protocol by the City Council and the Salvation Army. According to the project manager, locally held monthly meetings would have been necessary to avoid the communication gaps, especially in the situation of many projects going on with the same stakeholders. The project management attempted to enforce monthly meetings between the City Council, the Salvation Army, the field coordinator and the chairperson of the Sanitation Experts in order to increase communication between the stakeholders. The regular inclusion in local meetings and project planning was never attained and local communication remained weak in the final phase as well.

From the project management view, the position of field coordinator was very important and it should have been opened a lot before. Development and communication in the project improved after hiring the field coordinator, compared to how communication and cooperation were before the position, from the project management perspective. The role was very difficult since the field coordinator had to answer to many different parties and communicate between each stakeholder. While the position improved communication to be

more quick and efficient for the project management, yet, when communicating mostly through the field coordinator, other people felt left out from the decision-making, instead of including the local team and partners to the discussion. According to the project manager, the field coordinator had a lot of work which could not be covered by his working hours. Nevertheless, reporting was a major part of the field coordinator's work and should have been performed better to the City Council as it was completely inadequate. The City Council did not support the last selected field coordinator from the beginning and the representative stated in the interview that due to this, the City Council has not been active in the project for the last year. This complex situation and disrespect towards the local project team made the reporting and cooperation with the City Council even more difficult especially for the field coordinator.

University of Swaziland (UNISWA) was one local partner. The professors have given presentations on behalf of UNISWA at the courses, which the environmental health students have attended as well. According to the professors, there was sharing of knowledge throughout the project. The students were taken to field trips in Msunduza to see the project. For example, the 2nd year students have a course on different sanitation methods on-site and a visit in Msunduza to learn about the composting dry toilets is included. There is an Environmental Health Students Association with about 150 students which can get hands on experience in the voluntary activities around dry sanitation. On this project the collaboration was not very strong. The student involvement has varied as the students priority is to be in class and they are very busy in the end of the terms as exams take place. Therefore there has been limited time for the voluntary students to participate. According to the professors, during Leena Akatama's coordination there were planned activities during mid-term break which is better time for the students to do voluntary work. According to the project management, the role of the UNISWA was smaller than was planned in the beginning, as the students' involvement was random, not being involved for a regular, longer period of time. Positive outcomes were the professors' participation in the courses, their time for meetings and discussion and the help

from UNISWA in finding new constructors for the project.

5.4 Composting and home gardening in the project area

The objective of *Increased composting and home gardening in the project area* is linked with the built toilets and the use of composted manure together with other compost in gardening. The aim was to increase the use of manure by utilizing it also in landscaping, for example, to prevent slope erosion, which is common in the project area. By increased gardening the aim was to provide the households with adjunct nutrition and income, something important especially to the people with ARV medication as lack of food can prevent them to take the medication. (MDSP 2011.)

5.4.1 Home and community gardening

In the final evaluation, the gardens were not fully observed, but the interviews included questions of gardening around the dry sanitation theme. A household garden research was made in 2011. The Bachelor's thesis concentrated on households with gardens, to find out what kind of experience the residents had about home gardening. Only one of the 34 interviewed households had a dry toilet. The age of the gardens varied from some weeks to more than ten years, average being about four years. The size of the gardens ranged from small raised beds on a wall to 100m² sized backyard gardens and lack of space was seen as the main problem in Msunduza. (Oikarinen 2011.) In the interviews of final evaluation, many complained about limited space for gardening, but small garden solutions (e.g. tyre gardens and raised beds) could be seen. Many interviewed toilet owners saw it as an opportunity to have a dry toilet to start or do gardening and use the end products once the toilet is properly used. The interviewed leaders saw it as an opportunity as well to the dry toilets to encourage people to do gardening and to gain benefits of composting after education.

Some Msunduza community members are active in gardening, yet whether this is connected with the project activities and impacts is unclear. At the end of the project, there was not any community garden in Msunduza, but some educational gardens existed at schools as well as a small test garden at the Recycling Centre. According to the field coordinator, more gardens can be seen in Msunduza at the end of the project compared with the beginning of the project, but the weakness is that still a demonstration garden, where proper compost from the dry toilets could be in use, is missing.

One of the objectives was to hold a gardening contest during the final year, but it was never held due to lack of agreement of the criteria among the parties and the season which had brought heavy rains in the end of the year. Other objective was minimum of one written material or manual on each year, produced and distributed to the community on gardening, composting and toilet maintenance. The manuals were written by TUAS, but the field coordinator together with the Sanitation Experts had not distributed it to the community by the end of the project. However, some material was handed out in the gardening workshops. In the final phase, a workshop on composting and/or gardening was held three times in 2012 and three times in 2013. The purpose of the workshops was to educate toilet owners and other community members, who were interested in establishing a garden in their homestead. The goal of female participants in the workshops was achieved.

5.4.2 Acceptance and the use of the end products

Considering the amount of education given, it should be noticed that majority of the interviewed toilet owners wished for more education on composting and using the end products. A workshop of “Making compost out of human excreta” was held in 2012 for the Reuse group, the Environmental Educators and the Sanitation Experts, who operate as the trainers of community. Several gardening and composting workshops were held in the final phase. Issues discussed in the workshops were e.g. composting, use of the end products in a

garden, different kind of garden beds, integrated pest management, mulching and companion planting. Answering to the demand of education on the issues of composting and the use of the end products, a workshop of “The Proper use of Urine and Human Compost” was organized at end of the project.

The reasons why many toilet owners wished for more education on these subjects were that the owners did not attend the workshops and/or they need more immediate and practical education at the household level. Also active Enviro Clubs and community gardens did not exist in order to share ideas and experiences on gardening, composting and the use of end products. It is also remarkable that the Sanitation Experts, who were educated frequently on these subjects and had a significant role in educating the community at household level, expressed a request for more education in the final evaluation interviews. Most of them did not actively exercise the tasks such as gardening and composting in practice. They also did not have their own dry toilets, hence the educators of dry sanitation practices did not regularly practice dry sanitation.

In the beginning of the project there was a stigma connected to human waste and it showed to have been reduced during the project due to education (Kirstinä 2012). The results from the evaluation interviews supported this as the toilet owners mainly knew about the possibility to use the end products as fertilizer and soil enhancement and were open to talk about it. Even though some did not accept the use, they knew the benefits and were interested in selling the end products for someone else. Four out of 11 (4/11) owners had plans to do gardening and use the end products. Nevertheless, five out of 11 (5/11) toilet owners had some doubt about the end products or did not accept the use at all. One (1/11) had emptied the compost once to the yard, but had no plans for gardening. One (1/11) did not have plans in near future, as the toilet was not in her use and she did not know about the use of end products. The ranking activity showed that the Sanitation Experts and the local NGO's ranked the acceptance of the community as number one key challenge. The community leaders ranked this as the third challenge, the City Council as the second and

Ministry of Health as fourth.

In the household garden research (Oikarinen 2011) four out of 34 interviewed people used garden compost material as a fertilizer, eight used chicken manure and seven used commercial fertilizer, whereas 14 did not use any fertilizers at all. 20 out of 34 knew about composting and 10 of them already had garden composts. When asked about using the end products from the dry toilets, 24 interviewed people answered that they could use composted toilet waste in their garden as a fertilizer and only two absolutely refused with concerns about health issues. One interviewee was ready to use the manure from a nearby public meeting point toilet. The rest of the interviewees were not aware of dry sanitation and the possibility of using the end products from dry toilets as fertilizer. (ibid.) It is important to notice that only one of these people had a dry toilet, but they all practiced gardening.

At the end of the project, not many toilet composts had been ready to be used, which indicates that the toilets have not been actively used or the ones used properly were still waiting to be filled or composted. The interviews showed that the attitude towards using the end products in home gardens was more positive with those who were content with their toilets and used them well. The owners who used and maintained the dry toilets in a proper way were also more open minded to the idea of using the end products, even if they had not yet used them. Those who did not have a plan to use the end products and had difficulties in accepting the idea did not actively practice gardening and they also had problems with the proper use of the toilet. One had emptied the compost from the Enviroloo to the yard, but they had no further plans for gardening. One had not used any end products and did not have knowledge about the use either. One had problems with the toilet, but in the future there could be a garden and the end products could be used. One did not have garden and the toilet was closed, but she wanted to take the compost to the rural area someday. Some others also expressed that they would like to take the compost to rural areas for use and one was willing to sell the urine, but not

use it herself. Some also stated that they could possibly use the end products, if it was only themselves using the toilet.

Many of the owners did not practice gardening during the evaluation. This can indicate that the end products were not even needed in their households, hence the benefits of the dry toilets for them simply were better sanitation and hygiene in their family, even if they knew the possibly benefits of the end products in theory. Some misuse of the end products appeared, which indicates that the owners have not understood or they have not received education on the adequate use of the end products. All the interviewed owners who possessed a positive attitude towards the use of end products wanted to get more education on the applying of the compost in gardens.

5.5 Sustainability of the project

The objective of *Enhanced sustainability of the project* aims for the sustainability of the project. Since the third phase was the last one of the project, throughout the last two years the overall focus has been on sustaining the results and effectiveness of the project in the area. The ownership, responsibility and the role of the local partner, the Sanitation Experts, the local leadership, and the owners and the caretakers of the toilets will be considered and emphasized regarding sustainability and the continuance of the implemented activities in the project area. (MDSP 2011.) These issues have been also included partly in the all project objectives as well as throughout the project.

5.5.1 Ownership of the project

In many development projects ownership is usually defined as economical and country-led ownership (World Bank). Active ownership means that the knowledge gained during the project is fed back into the core activities, providing energy for creating regional growth and employment (Brulin;

Svensson, 2012, p.10). Therefore the definition of ownership can be seen dependent on the project implementation strategy and size. The Msunduza Dry Sanitation Project was NGO-led and had an aim of increasing sanitation knowledge and knowhow of all its partners, by which the project would increase the livelihood and participation in the project area. In this evaluation, the ownership is studied in the capacity of the local structures to consider and continue the project as own when the project funding ends.

The project struggled all along with poor ownership together with the low participation of different stakeholders (Mid-term evaluations 2009 & 2011; Annual reports). In the beginning, the dry toilets were fully given to the beneficiaries, which can have led to decreased ownership of the toilets in the community from the beginning. In the second phase, commitment agreements for the toilet owners were applied to increase the commitment of households taking care of their toilet. In the final year of the project, application forms for the potential toilet owners were created to increase the ownership and commitment. These forms enhanced the household contribution in terms of labor, time and possible material resources in order to the beneficiaries to understand and gain ownership of their dry toilets. However, not only the households should gain the full ownership of the dry toilets, but the community entirely, especially the leaders, should do so as well in relation to the public toilets and activities related to sanitation. At the same time with the aim of increasing ownership was to lower the construction costs of the toilets, for the community to be able to afford building toilets in the future on their own using local materials and local skills without outside funds.

During the second phase, the selection of the households receiving a dry toilet was shifted more to the Central Committee in order to include the local leaders more in the project decision-making (MDSP 2011). Thereafter, they were more or less in charge of making the decisions on locations for the dry toilets. Better criteria for the selected beneficiaries could have led to increased ownership of the toilets and the criteria could have been made clearer to the leaders and the

whole community. This way the owners could have considered the toilets as their own, instead of the project toilets, already from the beginning creating more activities around dry sanitation. Nevertheless, the meeting point toilets seem to be a good indicator for the community ownership of the project. The community does not have the capacity, interest or means to maintain the common facilities, although some individual toilet owners do.

The leaders had, nevertheless, a very positive attitude towards the project, and they saw the benefits as improved welfare of the households and especially the elders having toilets. The leaders stated that the project had resulted in encouraging cleanliness, composting and gardening. They saw the importance of the Sanitation Experts having their own toilets in order to continue the education of community. The Central Committee acknowledged that if the Msunduza Environmental Association was fully functional it would be working for the sustainability of the project. The leaders also requested more toilets for the community as there are still people in need, but they requested these toilets from Finland. This indicates that the community still relies on the outside aid and the community seems not to have full ownership of the project at the end.

It seems that the project is more owned by the Sanitation Experts and the MEA, those who have been actively participating in the project implementation, rather than the entire community and the leadership. This active group of community members also has the most knowledge. At the same time, the future plans were rather undefined and not all the experts, for example, will actively continue their work after the funding ends and the MEA was not yet fully established. This shows that the ownership is on a rather weak base and lacks strong existing structures.

5.5.2 Social and economic sustainability

One of the goals was to create small scale business around dry sanitation which means composting, gardening, toilet construction or other activities

related to the project (MDSP 2011). However, more important goal was to increase the self-sufficiency of household nutrition by establishment of home gardens, together with recommendations of the promotion of using compost in landscaping in the project area. The slow acceptability and doubt about the safety in the use of end products seem to be one side why the small scale business activities did not grow. The markets did not exist for this kind of business and they were not created with full intentions during the project. According to the field coordinator, there has also been a lack of implementation of this part. As part of increasing economical sustainability the project provided training in fundraising, but not in business skills. At the time of the evaluation, some economical ambitions could be seen. The Sanitation Experts planned to have some kind of small scale business around dry sanitation in the future and they also saw it as an opportunity to the team to be hired as experts when replicating the activities to other communities and new project areas in Swaziland. The field coordinator recommended legalization and proper business plan to be put in place by the MEA, of which activities could be selling sawdust, selling seedlings, maintaining toilets, supervising construction, and buying and selling the end products. According to the field coordinator, this kind of dry sanitation business would be its first kind in Swaziland and needs more innovative planning.

The project area is affected by poverty, unemployment and poor health with high HIV/AIDS rate, which lead to social problems as well. The interviews showed that most of the toilet owners would not have adequate toilets without the project implementation. Hence, the project has enhanced the welfare of households in the project area. According to the leaders, many households are yet in need of a toilet and more education and actions are needed to take care of the built ones. If the local community structures have ability to function, and especially the MEA is activated with active base of membership, the dry sanitation activities can lead to supporting the further social and community development.

5.5.3 Institutional sustainability

The City Council of Mbabane as a municipal authority has gained a lot of knowledge about dry sanitation through the Msunduza Dry Sanitation Project. They saw the project as a good introduction to the future sanitation management, as a response to the challenges of global warming, future sanitation needs and water scarcity in Swaziland. At the end of the project, the City Council did not have specific plans in the project area, but they had already started to implement similar activities in other communities in Mbabane, which also has been a plan of TUAS and GDTAF as a new project is being implemented in 2014. The project management was uncertain, whether the City Council will have time, motivation and other resources to continue in the project area at the end of the project. The communication gaps and frictions seemed to influence the future planning as well. The City Council representative stated that while the City Council is working and replicating the practices in other communities, they wish to take Msunduza forward at the same time. According to her, while the City Council wants to continue work with the key stakeholders of the project as trainers and in mobilizing the communities, the Sanitation Experts of Msunduza could be part of the new projects if they are motivated. She stated that GLM Swaziland should cooperate with the City Council, not with the Msunduza leadership, and any organizations entering communities in Mbabane should be doing so by the City Council. As the main challenge from the City Council point of view has been the local leadership of the project area not being recognized by the City Council, the local leadership of Msunduza should be in its place in order to collaborate. At the end of the project, the activities including the City Council in the project area base on the Recycling Center, which was funded by EHEP and implemented together with the City Council. The center is in active use and it also has a composting dry toilet, which is a great example for the visitors and people interested in dry sanitation. The center also has a test garden, in which the end products are used to see the results.

The Salvation Army was in a local administrative role in the project and they did not have specific plans within the project at the end. For the sustainability of the project, the Captain saw the role of Enviro Clubs and the MEA very important in continuing the project activities. According to him, the community needs the Sanitation Experts to help in problems and issues around dry sanitation and as the project contributed a lot to Msunduzi, which is one of the poorest and most densely populated communities with bad sanitation, there is still work to be done. The Captain noted that the Salvation Army is and will always be there working with the Msunduzi community. If any issues and inquiries occur on dry sanitation, they are there to assist, if possible, and the challenges can be solved together with the community members. Due to the project, they know more about the families who are benefiting from the project, which completes with the work that the Salvation Army is doing. According to the Captain, the aim was to improve sanitation by building toilets and this aim was met for those who received a toilet. Especially children benefited in these cases and the beneficiaries' life changed as they were educated by the Sanitation Experts. The Salvation Army mandate as an organization is transparency, honesty in involvement and integrity in all their business and according to the Captain this was followed on the role given in the project. Together with the Sanitation Experts they had been brainstorming about the transition in the project end and the Captain had been present in the meeting held with the MEA to be involved in the future planning.

Many stakeholders (the leaders, the Sanitation Experts, the Salvation Army, the project management) seem to put expectations on the Msunduzi Environmental Association in sustaining the project activities and developing further plans for the dry sanitation in the project area. The City Council is not considered as an active organization working in the area more than before, for their role seem to be a supervisory authority. The project management emphasizes also the local cooperation with GLM Swaziland, whereas the local stakeholders seem not to have so clear vision about its role. One of the project goals was to involve an organization interested in the venture and the GLM

Swaziland can be seen as this organization, having participated in the project in the final phase in order to continue the capacity building and education. With this help, the MEA could be formed into an active leader of dry sanitation activities, if the community and people involved are able to find a common vision. One of the project goals was to establish a platform to enhance exchange of experiences and expertise on health, sanitation and cleanliness. The MEA can act as this platform, especially if the Enviro Clubs become functioning under the umbrella of the association. In this case, the toilet owners and the Sanitation Experts can share their experiences, educate and offer expertise in dry sanitation issues within the community and other communities as well.

6 CONCLUSIONS

The final evaluation of the Msunduza Dry Sanitation Project aimed at answering the main questions:

- Has the project achieved the goals which were established in the project plan? If not, why?
- Have the planned activities been implemented in the project? If not, why?
- What are the impacts of the project in different levels, for the target group and other stakeholders?
- Are the project achievements sustainable?

The final evaluation had a broad scope, including all the project goals and hence the evaluation of the entire project. Some parts could have been researched with a deeper focus in order to find more extensive findings to explicate the results. One of these sectors could have been the efficiency of education and educational methods and contents, for education had a major role in the project implementation. Education is always a long process and requires time and resources with an appropriate approach, especially with an innovation which is new and unfamiliar to the target group. Despite the large volume of sanitation education, the Msunduza community has generally low participation and knowledge in sanitation issues at the end of the project. The problems with basically all the public and some of the household toilets indicate this, e.g. the dry toilets are generally not properly used and taken care of, while the common facilities are not respected. The education was mainly relied on the Sanitation Experts, which for a group of 7-10 people with variable motivation and skills, was a very demanding role. For example, the capacity of other existing community educators could have been joined more strongly to the project in order to gain better results in education. A remarkable point is that the experts did not actively practice dry sanitation and composting themselves, for they did not have a dry toilet in everyday use. This was due to the decision by

the community leaders and it was only in the final year of the project when the experts were accepted to receive their own toilets in order to sustain the sanitation practices and education in the future. More active and accomplished dry toilet users would have been needed already from the beginning of the project in order to show appropriate example.

The Msunduza Dry Sanitation Project has, however, managed to achieve its goal of increasing the awareness and knowledge of good sanitation and hygiene practices in the Msunduza community. The impact for the direct and indirect beneficiaries has been positive in different ways. Mostly people have a positive attitude towards dry sanitation, but the practices in dry toilet use may still be somewhat inadequate. All toilet owners who were interviewed during the evaluation stated improvement in their family sanitation situation and hygiene, even if they had problems with the toilets. The project provided toilets for those in need without a proper toilet. Hence the project has increased the welfare and health of the families, alias the direct beneficiaries, lowering the inequalities and poverty at the same time. People gained knowledge in different levels. The toilet owners and users gained knowledge in basic hygiene and sanitation, the Sanitation Experts in sanitation, project skills and social network likewise those community leaders who were actively participating in the project. Some local people, such as the experts and the constructors, benefited also financially while being employed by the project. Those community members who actively participated in the project activities, workshops and meetings have gained the most knowledge. It seems that the social and cultural acceptability of dry sanitation can still generally be quite low in the community, but at the same time it is increasing and there are several people among the toilet owners, Sanitation Experts and community leaders who have learnt to accept it through education.

The project has increased the sanitation solutions and the knowledge of composting dry toilets and their benefits in different levels, in the communities and even outside, on the national level as well. An introduction of dry sanitation to the authorities and different organizations in Swaziland can be seen as one

of the important achievements of the project, as for example the authorities of Mbabane City Council possess a positive attitude towards dry sanitation at the end of the project. This answers to the demand of different sanitation solutions, water scarcity and other environmental challenges at present and in the future.

The goal of increased composting and home gardening could have been achieved better, for now these activities are rather low compared to the capacity. Some community members are active in gardening, yet whether this is connected with the project activities and impacts is unclear. The end products from the dry toilets are not yet in active use in the community due to various reasons. It seems that this is especially due to inadequate practices in dry toilet use together with insufficient and belated education on composting and the correct use of the end products, which at the same time can bring doubt among the community towards the safe use of the end products. Also the demand of the authorities to test the safety of the manure before the use has affected to the general acceptance, causing confusion among the beneficiaries. Together with the stigma this has slowed down the process of the community seeing the full benefits of the project. The beneficiaries and other community members seem to appreciate the toilets as a modern and nice-looking facility, whereas the benefits of composting and the end products are left behind in practice and only known in theory.

Different selection criteria for the beneficiaries could have led to other kind of results. Those, who are active in gardening, and possibly already practice composting, could have gained the full benefits of the dry toilets faster and more efficiently leading to the results of using the end products and showing example to other beneficiaries. In some cases, the beneficiaries were people who did not have space for gardens. Many of the toilet beneficiaries were selected to be the elderly of the community. The elderly do not often have strength and capability to do the chores which are needed when maintaining the toilets, e.g. collecting sawdust, and leveling and emptying the chambers. They also might possess challenges in maintaining their gardens. Although age, level of poverty, lack of

sanitation facility and number of people living in the household are the criteria for selection, the capability of maintaining the toilet, further use of the end products and household contribution should be considered when selecting the dry toilet receivers. Commitment to proper use and maintenance of the toilets are very important in both household and community level.

Participation was an issue all along the project. Majority of the planned activities were implemented throughout the project, but some more efficiency and clarity in planning and actualization of these activities would have been needed at the local level. Low active participation of all stakeholders and frictions between them can be seen as one of the project's weaknesses. The local stakeholders were not as active as was demanded and expected. Many decisions and practical activities were carried out by TUAS of Finland, both the project management and the students who were doing their practical trainings in the project. More local participation and local cooperation between the Msunduzi leadership, the Salvation Army and the City Council would have been needed in order to increase the ownership of the project. The Msunduzi leadership could have also been involved and educated more constantly on community development and the issues of sanitation in order to understand the project implementation and cycle, the objectives of the project and the importance of sustainability. Not all responsibility should be left for the community either. Inadequate sanitation is a problem in the project area as well as other peri-urban areas of Mbabane. For example, the dry toilets were tested on schools as well, where the sanitation facilities are inadequate. The toilets were completely left without maintenance. The City Council of Mbabane as the authority to inspect and oversee the school facilities should also take part in preventing the health risks for pupils.

The evaluation of sustainability of the project achievements is tortuous. As the community does not have strong structures for continuing the activities around dry sanitation, the future sanitation practices are difficult to assess. The active Enviro Clubs could have indicated continuous practices, but the Msunduzi

Environmental Association is still in the phase of establishment and hence the future is not predictable. The activities may continue among the active toilet owners and other community members interested in dry sanitation and environmental issues, together with those Sanitation Experts who will continue their work, and in cooperation with MEA and GLM Swaziland. GLM Swaziland will continue community development and education in the area and hopefully the community will understand the value of this cooperation. The City Council of Mbabane should also include Msunduzi when replicating dry sanitation practices to other communities in Mbabane in order to sustain the project achievements and have synergy with the new project areas. The Msunduzi leadership should take a role in this cooperation as well in order to continue the development of sanitation in the Msunduzi community. It is possible that without active and continuous education and support for the existing toilet owners and caretakers, the toilets will not provide the full benefits to the community. If the activities continue, there is a great possibility of gaining more benefits and further development in the community, even spreading the benefits of dry sanitation more extensively in Swaziland.

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Appendix 1. The Terms of Reference for Msunduza Dry Sanitation Project Evaluation

Msunduza Dry Sanitation project (2012-13)

Terms of Reference for the Final Evaluation by Jonna Heikkilä and Silja Leppänen

1. Sharing background knowledge and providing the rationale for the evaluation.

Turku University of Applied Sciences has worked in Swaziland since 2004, when TUAS students carried out a base line study to map the environmental health conditions, people's knowledge and development needs in Msunduza, the oldest and biggest informal settlement of Mbabane, the capital. Lack of proper sanitation was revealed as one of the major environmental health challenges in the area (Koivisto 2005). The study led first to an initiation of the Environmental Health Education Project (EHEP) in 2005 together with the Mbabane City Council to increase knowledge on environmental issues in the township. Local volunteers were trained to educate communities and schools on diverse environmental issues. To emphasise the questions around sanitation and the possibilities of dry sanitation in particular, the Msunduza Dry Sanitation Project was launched in 2007 as an independent project to focus on these issues only.

Msunduza Dry Sanitation Project is a joint development cooperation project between Turku University of Applied Sciences, the Global Dry Toilet Association of Finland and the Salvation Army in Swaziland, and is funded by the Ministry for Foreign Affairs of Finland. The project aims to improve the sanitation hygiene in Msunduza Township by building dry toilets and by providing sanitation education. Furthermore, the project promotes the use of composted material in landscaping and as fertilizer in home gardening, thus supporting local food production among the poor households. People's participation in project activities and livelihood through income gains are additional objectives of the project. The current and third phase of the project (2012-2013) has focused on sustaining the results, supporting the local ownership over the project and on spreading the knowledge also outside of the project area.

Project Area

Msunduza Township is a densely populated township located close to the city centre. It is the oldest and with its 16 000 inhabitants also the biggest township in Mbabane. More than half of Msunduza has an informal status and often the township, where the mud-and-stick houses sprawl on to the surrounding steep hills, is considered as a temporary residential area. Steep topography, poor roads and inadequate infrastructure are the main features of the township (Akatama, 2008). In the areas of Msunduza with an official residential area status, 70% of the households have water closets compared with 10% of the households in the unofficial areas (Koivisto, 2005). For the rest, sanitation solutions are diverse (ibid.). Whilst some use traditional pit latrines, rely on neighbours' toilets or simply buckets, some prefer the so-called 'flying toilets', where defecation is done in a plastic bag and thrown into the environment. Some empty their faeces into the pits for household waste and especially during the rainy season, yards and water points get contaminated, easing the spread of cholera and diarrheal diseases. Some years ago, the municipality responded to the lack of sanitation facilities by building a number of pit latrines with concrete slabs in the most poverty-stricken areas. However, these have largely been left unused since the project only provided the chamber and seat while the superstructure was left for the end users to build. (Akatama, 2008)

Project goals

1. Increased number of improved sanitation solutions in the project area.

Qualitative and quantitative goals

- Knowledge on how to build an adequate toilet will improve and the leak/repair detection supported
- Sanitation Clubs will have 50 active members all together
- Sanitation Clubs will have meetings every other week
- Sanitation Clubs will have at least 4 workshops during the year 2012 and at least 2 in 2013
- Construction workshop will have 10 participants out of which 5 will start to build an improved toilet of their own.

2. Increased knowledge on sanitation in different levels

Qualitative goals

- Knowledge on dry toilet use and maintenance will increase
- Knowledge on benefits of dry toilets will increase
- Knowledge on hygiene and health will increase

- Hiring the Field Coordinator will improve effective responses to problems in the field, fasten decision-making and support reporting to the project management

Quantitative goals

- The Sanitation Experts will reach at least 80 people monthly while educating community members of Msunduza
- School Experts will visit all the schools of Msunduza during the year 2012 and at least 6 schools outside of Msunduza in 2013
- The School Experts will reach on average 50 pupils during each of their school visits
- At least 25 people will participate in the courses organized and they represent at least 5 different sectors of professionals
- There will be participation in at least two awareness campaigns, such as radio, local newspaper, leaflet or other to target users on the health benefits of dry sanitation.

3. Increased participation in the project area

Qualitative goals

- Community participation will be increased through the Sanitation Clubs
- Connections and dialogue between Msunduza and official authorities of Mbabane will be supported
- Capacity building will be continued through various workshops and courses
- Increased management, organizational and leadership skills of the members of community
- Empowerment and participation of especially women and the youth
- Participation of local leaders will be emphasized

Quantitative goals

- Sanitation Clubs will have at least 5 other educators or representatives from different sectors outside the Project
- At least two persons will start an enterprise or small scale business in composting, gardening, toilet construction or other related to the Project
- At least two representatives of the local leaders will be present in the workshops and courses organized
- At least 10 of the 25 participants in the course organized will be women

4. Increased composting and home gardening in the project area

Qualitative and quantitative goals

- Gardening and composting will be encouraged even in small plots
- A gardening workshop will be organized especially for women with at least 15 female participants
- The gardening competition will have minimum of ten contestants

- Minimum of one written material or manual on each year will be produced and distributed to the community on gardening, composting and toilet maintenance

5. Enhanced sustainability of the project

Qualitative goals

- Ascertain that the concept of dry sanitation is understood, the dry toilets properly used and in use as a whole, and the activities continued after the project funding ends
- Sensitize the concept of dry sanitation to the City Council as a sustainable answer to sanitation challenges and food security
- Stigma of the manure will be reduced and the benefits of the dry toilets better understood through the experiences gained during the Zambian exchange visit

Quantitative goals

- Sanitation and dry sanitation is included in the curricula of three schools.
- An organization interested in the venture will participate in the course organized
- Minimum of one written material or manual on each year will be produced and distributed to the community on gardening, composting and toilet maintenance.

Implemented activities and results of the project so far

By the end of the year 2012, 37 dry toilets were funded out of which four during the last year. Yet, the construction of the funded toilets continues during the year 2013. Objective has been to construct 40 dry toilets altogether. The Sanitation Experts have continued with their community education and based on the results published in the Bachelor Thesis in 2012, the knowledge on sanitation issues has improved and stigma of using human originated waste has decreased. Throughout the project, education has been implemented through the work by the Experts, during different kind of events and workshops. During 2012, four workshops were organized: first one on composting, second on hygiene and health, third on dry toilet use and maintenance and fourth on composting and gardening. Additionally, a Higher-Level Course on Dry Sanitation was organised in October 2012, which included various stakeholders such as regional and national administrations, local NGOs and people of Msunduza to discuss dry sanitation. The project participated also in Msunduza Information Day at the Community Recycling Day to disseminate information on dry sanitation and provided education at four schools in their morning assemblies. Field Coordinator has been hired for the final phase in order to improve project effectiveness and communication. Furthermore, two Sanitation Experts visited Zambia to learn of the dry sanitation experiences through South-South Cooperation.

During 2013, workshop activities have included construction and gardening workshop, continuance of dry toilet construction and implementation of education in schools and community meetings. Furthermore, establishment of EnviroClubs has had an important role during the final year and for the sustainability of the project. Also in October, a follow-up course on dry sanitation is organised for various stakeholders on sustainability and local ownership of the project. Planned activities before the end of the year include finalising construction of dry toilets, organising gardening competition for households of Msunduza and testing of the composted material in test gardens in practise.

2. Identifying the specific evaluation questions.

Objectives:

The objective is to evaluate the final phase of the project by reflecting the former evaluations of years 2008 and 2011 to the objectives, activities and goals of the project plan of 2012-2013. The objective is to evaluate the progress of the last phase what comes to the observations, results and recommendations in the former evaluations. Qualitative and quantitative goals of the project plan 2012-2013 are evaluated based on their actualization in practice.

The final evaluation is summative and the aim is to evaluate the project implementation by reflecting the goals and the activities established in the project plan to the actualization in practice. The Msunduza Dry Sanitation Project has been implemented in three different phases. A formative mid-term evaluation has been done in each former phase and these two mid-term evaluations will be reflected on the final evaluation. The recommendations of the mid-term evaluations and the project objectives were considered when establishing the objectives and activities for the final phase. This relationship between the project plan and the mid-term evaluations will be reflected when looking at the implemented activities and the achievements in the final phase. The aim is to evaluate whether the recommendations which were put to practice in form of different activities in order to reach the project goals have affected as planned. If the activities have not been implemented the aim is to research what were the factors, challenges and solutions in not succeeding in implementation and what are the impacts of failure to the final phase and the sustainability of the project.

The aim is to answer to the main evaluation questions:

- Has the project achieved the goals which were established in the project plan?
- Have the planned activities been implemented? If not, why?
- What are the effects and impacts of the project for the target group?
- Are the project achievements sustainable?

3. Defining the scope, approach, and methodology.

The approach of the project evaluation will be a qualitative research done by an internal evaluator who is familiar with the project from the spring 2013. The methods used in the evaluation include interviews, SWOT analyses and other participatory methods, guided discussions, observations, community walks and monitoring, and reading reports and other evaluations and research which are done within the project. Different project partners and beneficiaries will be interviewed, including the delegates of Salvation Army, City Council, UNISWA, Sanitation Experts, TUAS, Green Living Movement as well as toilet owners, community leaders and community members. The evaluation will also include two case studies, a failed and a successful case of ownership of a toilet. On this comparison there will be observed which activities, such as participation, education and construction, have lead to the results.

Appendix 2. Framework of Evaluation

The results of the project	The activities of the project	The goals of the project	Indicators for evaluation	Methods of evaluation
Increased number of improved sanitation solutions in the project area	<ul style="list-style-type: none"> -Build new toilets in the project area -During the last phase of the project, Sanitation Clubs will be re-established -Construction Workshop for the established Sanitation Clubs 	<ul style="list-style-type: none"> -Knowledge on how to build an adequate toilet will improve -Sanitation Clubs will have 50 active members -Sanitation Clubs will have meetings every other week -Sanitation Clubs will have at least 4 workshops during the year 2012 and at least 2 in 2013 -Construction workshop will have 10 participants out of which 5 will start to build and improved toilet of their own 	<ul style="list-style-type: none"> -Toilets in use -Construction processes and quality -The state of Sanitation Clubs 	<ul style="list-style-type: none"> -Reports on workshops and construction -Interviews, themes: Sanitation Clubs, toilet use and maintenance, construction
Increased knowledge on sanitation in different levels	<ul style="list-style-type: none"> -The Sanitation Experts keep educating people on the benefits of dry toilets, sanitation hygiene, on composting, gardening etc. -The Sanitation Clubs has important role in this -School visits -Exchange visit to Zambian sanitation project 	<ul style="list-style-type: none"> -Knowledge on dry toilet use and maintenance, on benefits of dry toilets and on hygiene and health will increase -Hiring the Field Coordinator will improve effective responses to problems in the field, fasten decision-making and support reporting to the project management -The Sanitation Experts will reach at least 80 people monthly while educating community members 	<ul style="list-style-type: none"> -Education numbers and gender -Knowledge at homestead and community level (owners, leaders, Sanitation Experts) -Knowledge at organizational and national level (City Council, local NGO's, 	<ul style="list-style-type: none"> -Reports on school visits, education and monitoring -Reports on Higher-level courses and exchange visit -Interviews, themes: education, knowledge

	<ul style="list-style-type: none"> -Course on safe and sustainable sanitation will be organized together with UNISWA each year -Collection and documentation of information to the wider audience 	<ul style="list-style-type: none"> -School Experts will visit all the schools of Msunduza during 2012 and at least 6 schools outside of Msunduza in 2013 -School Experts will reach average 50 pupils during each school visit -At least 25 people will participate in the courses organized and they represent at least 5 different sectors of professionals -There will be participation in at least two awareness campaigns 	UNISWA, TUAS)	
Increased participation in the project area	<ul style="list-style-type: none"> -The Sanitation Clubs will get people to participate in community development, increase their capacity and the members of the project area will be included in relevant issues affecting them and will increase their participation in the local decision-making -Train selected community members on leadership skills -Encourage local people in entrepreneurship in composting, gardening, toilet 	<ul style="list-style-type: none"> -Community participation will be increased through the Sanitation Clubs -Connection and dialogue between Msunduza and official authorities of Mbabane will be supported -Capacity building will be continued through various workshops and courses -Increased management, organizational and leadership skills of the members of community -Empowerment and participation of especially women and youth -Participation of local leaders will be emphasized -Sanitation Clubs will have 	<ul style="list-style-type: none"> -Results of capacity building (GLM, participants) -Community participation (owners, leaders, Sanitation Experts) -Participation of different stakeholders (City Council, Salvation Army, UNISWA, TUAS) -Collaboration and communication (all 	<ul style="list-style-type: none"> -Reports on workshops and courses -Interviews, themes: Collaboration and communication between the stakeholders, participation, capacity building, Sanitation Clubs

	<p>construction etc.</p> <p>-Encourage gender mainstreaming by training women and vulnerable groups in technical and management skills, composting and gardening</p> <p>-Maintain solid relationship with the local leadership by joint meetings and activities to improve local ownership over the project</p>	<p>at least 5 other educators or representatives from different sectors outside the project</p> <p>-At least two persons will start and enterprise or small scale business in composting, gardening, toilet construction or other related to the project</p> <p>-At least two representatives of the local leaders will be present in the workshops and courses organized</p> <p>-At least 10 of the 25 participants in the course organized will be women</p>	stakeholders)	
Increased composting and home gardening in the project area	<p>-Educate local youth groups, women and local schools. The School Experts will be in charge of educating the youth.</p> <p>-A gardening workshop directed especially to women and their needs</p> <p>-During the final year a competition on home gardening will be organized</p> <p>-Compile and produce more information on gardening and composting</p> <p>-The Gardening</p>	<p>-Gardening and composting will be encouraged even in small plots</p> <p>-Gardening workshop will be organized especially for women with at least 15 female participants</p> <p>-Gardening competition will have minimum of ten contestants</p> <p>-Minimum of one written material or manual on each year will be produced and distributed to the community on gardening, composting and toilet maintenance</p>	<p>-Home and community gardening</p> <p>-Acceptance and use of the end products (owners, leaders, Sanitation Experts)</p>	<p>-Reports on workshops and education, monitoring gardens</p> <p>-Interviews, themes:</p> <p>Gardening, education , use of the end products, acceptance</p>

	Expert will be asked to join the Expert's team			
Enhanced sustainability of the project	<p>-Creating a responsible exit strategy together with the local partners and finding best practices to sustain the results with the consideration to the beneficiaries and other stakeholders</p> <p>-The Sanitation Clubs will be established in cooperation with another project working in the area, EHEP, and the City Council</p> <p>-Establish a platform to enhance exchange of experiences and expertise on health, sanitation and cleanliness</p> <p>-Support institutional anchorage of capacity building activities in existing regional organizations</p> <p>-At the end of 2012, two Sanitation Experts will visit another dry sanitation project in Lusaka to share experiences and best practices on</p>	<p>-Ascertain that the concept of dry sanitation is understood, the dry toilets properly used and in use as a whole, and the activities continued after the project funding ends</p> <p>-Sensitize the concept of dry sanitation to the City Council as a sustainable answer to sanitation challenges and food security</p> <p>-Stigma of the manure will be reduced and the benefits of the dry toilets better understood through the experiences gained during the Zambian exchange visit</p> <p>-Sanitation and dry sanitation is included in the curricula of three schools</p> <p>-An organization interested in the venture will participate in the organized course</p> <p>-Minimum of one written material or manual on each year will be produced and distributed to the community on gardening, composting and toilet maintenance</p>	<p>-Ownership of the project</p> <p>-Acceptability</p> <p>-Structures (Sanitation Clubs, stakeholders' participation and plans)</p> <p>-Knowledge (owners, leaders, Sanitation Experts)</p>	<p>-Interviews, themes:</p> <p>Ownership, future plans and participation (different stakeholders), Sanitation Clubs, knowledge on dry sanitation practices, toilet use and maintenance</p>

	<p>dry sanitation</p> <p>-Develop manuals for operations and maintenance as part of capacity building activities for utility management of dry toilet functions</p> <p>-Local organizations which would be interested in the venture, are sought to continue the activities of the project</p>			
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Appendix 3. The interview questionnaires

Msunduza Dry Sanitation Project
Final Evaluation 2013
Questions for the interviews

Toilet Owners

1. Maintenance and usage of toilet

- Is the toilet working properly? (Explain how your toilet is working)
- Are there some challenges in maintaining and using the toilet?
- How many people use the toilet? All in the family or a part of the family?
- Who takes care of the toilet? (Cleaning, leveling, dry substances, emptying...)
- Handwashing
- Experiences of using the toilet?

2. Using the end product (urine as fertilizer/composted excrement as soil enrichment)

- Are you familiar with using the end products? How to use?
- Have you used it in a garden? Have you taken it somewhere else?
- How do you feel about using the end products?

3. Sanitation situation

- Do you think that the sanitation situation has got better in the family? Has it affected the health of the family?
- Handwashing
- Are you happy with the education? Sanitation experts? Workshops?
- Is there something you would have liked to learn more about?
- Do you think that there is a link between sanitation, health and environment?
- Do you think that compost toilets are a good solution for sanitation in Msunduza?

4. Future and sustainability

- Do you have any plans for the current sanitation facility? Are you planning to change your toilet in the future? If so, what will be your solution?
- Will you and your family be using the composting dry toilet?
- Do you think you need help in maintaining the toilet? (For example from experts)
- Do you wish there would be workshops and community meetings considering the toilets?
- Are you a part of an Enviro Club and do you attend the community meetings?
- Would you like to teach other people about the use of composting dry toilets?

5. SWOT:

Strengths...

Weaknesses...

Opportunities...

Threats....of having a dry composting toilet?

Community leaders

1. The criteria of choosing the owners
 - How and why have the owners been chosen?
 - Has the criteria always been the same or has it changed?
 - Were the leaders educated on the principles of dry sanitation before the process of choosing?
 - Was the criteria clear to the community?
 - Sanitation experts toilets
2. Challenges in ownership
 - Have the benefits and responsibilities been made clear to the owners?
 - What kind of challenges have been faced?
 - Have the leaders taken action on owners who are not following orders?
 - Solutions and actions made?
3. Community meetings
 - Has there been education and information about dry sanitation at community meetings?
 - Have there been opportunities for experts to educate?
 - How often these meeting with education take place?
4. Leaders' participation in the workshops
5. Enviro Clubs
6. Communication with City Council, Salvation Army, Sanitation Experts
7. Overall assessment of the project
8. The benefits of the project
9. SWOT

Neighbours

1. Do you know what is dry sanitation? The principles?
 - Explain...
2. Have you used a composting dry toilet? Do you have experiences of the toilets?
3. Have you got information about dry sanitation?
 - Who have you got information from?
 - Would you like to get more education?
4. Have you heard or taken part in Enviro Clubs?
 - Are you interested in taking part?
5. Do you think there is a link between sanitation, health and environment?
6. What is the sanitation solution you prefer?

Sanitation Experts

1. Building & construction

- The situation of the experts' toilets? The toilets in all?
- Construction Monitoring Team
- Challenges?
- Solutions made?

2. Community participation and education

- The situation of community participation? Is there interest, talk and action about dry sanitation?
- The attitudes of owners, beneficiaries / other community members towards the experts?
- Have there been opportunities for education and information about sanitation on community meetings?
- Do you feel that the experts' education have reached the community members?
- Enviro Clubs
- How do you see the situation of dry sanitation in Msunduzi at the moment?
- The biggest challenges

3. Communication and management

- Have the project goals and activities been clear to the sanitation experts?
- Have the experts got support from other project partners and members?
- Challenges?
- Overall assessment of the leadership

4. The benefits of the project

5. SWOT

Salvation Army / Captain Nhlanhla Zibuqu

1. Building & construction

- The situation of the building and construction in the last phase of the project?
- Any challenges what comes to building?
- Experiences from the construction workshops?
- The process of approving the finished toilets → constructor's payments
- The construction budgets
- Are the toilets affordable for the community? Is the community able to build on their own at low cost from local materials?

2. Communication and management

- Has there been clear internal communication between the partners?
- Participation in weekly Sanitation Experts' meetings
- Participation in monthly meetings with the stakeholders (City Council, Experts' Chairman, Field Coordinator)
- Other participation (workshops etc.)
- Challenges?
- Solutions made?

3. Salvation Army's role

- Describe it in the final phase and now in the end of the project
- The benefits of the project
- Will there be some kind of role in sanitation issues in Msunduza after the funding ends?

4. Sanitation Experts' work

- Your opinion about their work?
- Participation, capability and motivation

5. The benefits of the project

6. SWOT

City Council / Ellen Matsenjwa

1. City Council's role in the project
 - Shared responsibilities and communication
 - Within City Council (the role of Ellen)
 - Within the project partners
2. City Council's participation
 - Weekly Sanitation Experts meetings
 - Workshops
 - Monthly meetings with the Salvation Army, Sanitation Experts' Chairperson and the Field Coordinator
 - Local cooperation
3. Building and Construction
 - The process of building permits
 - Approval of finished toilets by Building Inspectors
4. The biggest challenges
 - Political challenges
 - Central Committee
5. The benefits of the project
6. The situation of dry sanitation in Msunduza in the end of the project from City Council point of you?
7. Plans for dry sanitation in near future in Msunduza / Swaziland?
8. SWOT

Emmanuel Mutamba / GLM Swaziland

1. The Capacity Building Programme was initiated in Msunduza to build capacity and to increase community participation. How do you as a facilitator see that the workshops have met the goals?
2. As a facilitator..
 - are you satisfied with the number of participants?
 - are you satisfied with the active participation during workshops?
 - have you seen some improvement in community participation during the programme?
3. One of the objectives was to create small-scale business and enterprises in Msunduza. I have understood that in the Zambia project there is active business around dry sanitation.
 - What are these businesses and what were the processes in establishing them?
 - Has the implementation been difficult or did the community accept the idea of business and dry sanitation easily? (explain please)
4. How were the Enviro clubs established and implemented in Zambia?
5. What plans does GLM have for Msunduza in the near future?
6. SWOT

UNISWA

1. University's role in the project
2. The students / university staff capacity and activities on the dry sanitation projects
 - Environmental Health Students Association
3. The view of dry sanitation in Swaziland? Msunduza project?
4. Plans in near future on dry sanitation in research & study programmes?
5. The benefits of the project

Field Coordinator Matambo Ngobese

1. Enterprise and small business
 - Are there some existing? Why not?
2. Enviro Clubs
 - What is the situation at the moment?
 - Challenges in implementation?
3. Garden competition
 - Situation and outcomes
4. School Enviro Clubs
5. Sanitation Experts' work
 - Participation, capability and motivation
6. Overall assessment of the project
7. Management and communication
8. The benefits of the project
9. SWOT

Project coordinator Jonna Heikkilä

1. How long have you been a project coordinator and how many former project coordinators have there been before you?
2. Cooperation and communication
Describe the project cooperation and communication with different stakeholders. Has it improved or decreased along the project? Has there been some critical changes that could have affected the project in positive or negative way?
 - a) Salvation Army
 - b) City Council
 - c) Field coordinator
 - d) Local leadership
 - e) UNISWA
3. Sanitation Experts
 - a) How do you see the experts role and participation in the project?
 - b) How many people the experts educated in a month?
 - c) How many hours did the experts work in a month?
 - d) How have the monthly hours and experts' work been monitored?
 - e) Has there been some action in case of poor working skills?
 - f) How were the experts educated on dry sanitation?
 - g) What were the requirements for an expert to be hired?
4. Field coordinator
 - a) What were the requirements for the field coordinator's job?
 - b) How do you see the field coordinator's role and participation in the project?
 - c) How has the employment of field coordinator affected the project coordination and communication from your point of view?
5. Construction of the toilets
 - a) What are the reasons for having many different kind of toilet models in Msunduza?
 - b) Has the project approved the quality of the constructors' work?
 - b) Describe the challenges and the successes of construction from your point of view?
6. Enviro Clubs (Sanitation Clubs)
 - a) What were the implementation plans for the Enviro Clubs in the beginning?
 - b) When and how were the clubs first senzitized to the community?
 - c) Where there some changes made to the implementation plan at some point?
7. The biggest challenges in the project from your point of you?
8. SWOT

Appendix 4. Table of the interviewees

Interviewee	Role in the project	Organization
Mr. Captain Nhlanhla Ziqubu	Local coordinator	Salvation Army
Senior health inspector Ms. Ellen Matsenjwa	Local partner	City Council of Mbabane
Professors Dr. Ababu Teklemariam Tiruneh and Mr. William Ndlela	Local partner	University of Swaziland
Facilitator Mr. Emmanuel Mutamba	Local partner	Green Living Movement Swaziland
Mrs. Jonna Heikkilä	Project manager	Turku University of Applied Sciences
Mr. Bheki Matambo Ngobese	Local field coordinator	Msunduza community
Mr. Abedingo Ndlovu Mr. Nhlanhla Mohammed Mrs. Phindile Ngwenya Mrs. Futhie Shabangu Mrs. Georginah Mr. Mlungisi Nxumalo Mr. Sibusiso	Sanitation Experts	Msunduza community
Mr. Malaza Mrs. Dlamini Mrs. Gumedze Mrs. Simelane Mr. Lukhlele Mr. Mabuza Mrs. Motsa Mr. Dvuba Mr. Ginindza Caretaker of Mrs. Mnisi's toilet Caretaker of Mrs. Gama's toilet	Toilet owners or caretakers	Msunduza community
Mr. Simelane Mr. Nxumalo Mr. Dlamini Mrs. Dlamini Mr. Mazibuko	Community leaders	Msunduza community

Appendix 5. SWOT analysis from different stakeholders of the Msunduza Dry Sanitation Project

- i) Toilet owners and caretakers
- ii) Sanitation Experts
- iii) Msunduza leadership
- iv) Field coordinator
- v) Salvation Army
- vi) City Council
- vii) Green Living Movement
- viii) Turku University of Applied Sciences

Strengths	Weaknesses
<ul style="list-style-type: none"> i) - Development has come to the family. <ul style="list-style-type: none"> - The toilet looks beautiful and attractive. Getting compost when used properly. - Supporting the garden, growing food. - Tenants have a toilet too. - Symbol of development. Has helped the family to have a toilet. Compost once taken care properly. - It decorates the homestead, adds value. - It has helped the sanitation situation in the family, no human waste around. It is a lifetime toilet. - Family has a good toilet now. - The project inspired and encouraged to do gardening. The toilet is lifetime unlike pit latrines. - They have one place for defecation, not going anywhere in the yard. - Keeps the homestead clean, no faeces around. - The toilet is next to him. It is well constructed, nice toilet. ii) - Many toilets in Msunduza now. <ul style="list-style-type: none"> - Meeting Point toilets can be strength as people meet there and will use the toilets. More education is still needed though and strong leadership to end the vandalism. - Experts are very committed to the work and some of them keep doing their work after the project ends even without payment. iii) - Has helped the community in sanitation. <ul style="list-style-type: none"> - Able to help elderly people who didn't have strength to build toilets or did not even have space to build. - Project has helped people who were very difficult the community to help. - Issues of dry sanitation have been brought up and committee is encouraging people to have a toilet. - Able to build a toilet at meeting point 	<ul style="list-style-type: none"> i) - Construction: steps are too big and long and railings are missing. <ul style="list-style-type: none"> - The toilet is not being used. The toilet is too close to the house. - Enviro loo doesn't collect urine. If the toilet is not taken care properly it is weakness. - The toilet seat is not comfortable. - The use of sawdust. - Misunderstanding within family, who collects sawdust etc. - No hand railing for disabled. - Toilet is far and she is blind. - The toilet room is too small inside. - Seat is too small, people end up making it dirty. ii) - Meeting Point toilets get vandalized. <ul style="list-style-type: none"> - People expect the Experts to maintain and take care of their toilets. - People don't use sawdust. - Project stationary, no copying, difficulties for secretary. iii) - Politics <ul style="list-style-type: none"> - No proper follow-up of the toilets as some toilets are not properly constructed. - Toilet owners who are not using toilets properly. - The project used to provide seedlings but not providing anymore. - More people need toilets but the toilets are no more provided. - Homesteads not using the toilets properly, which has disturbed the use of the end products. iv) - Not to have a proper demonstration garden by the end of the project. <ul style="list-style-type: none"> - Not to have proper compost in use. - Criteria of toilet owners. v) - Some of the Sanitation Experts take it as a job, not as community work. They are hired rather than bringing change to the community.

<p>where everyone can see the toilet and use it.</p> <ul style="list-style-type: none"> - Benefits, opportunity to use end products and gardens. - Toilets in a space where there would be no toilets or it would be difficult to build. <p>iv) - Introduction of dry sanitation to Msunduzi and other communities nationally as well.</p> <p>v) - The promise to the community was delivered (improving sanitation situation by building toilets).</p> <ul style="list-style-type: none"> - Working with the students was good and there were a lot of dialogue. - The Sanitation Experts' capacity has been built. The project has invested in Experts and they have learnt a lot. <p>vi) - International support, full support of practices.</p> <ul style="list-style-type: none"> - Dry sanitation methods are tested and supported. - Response to the challenges of global warming, future sanitation needs and water scarcity. <p>vii) - Youthful population.</p> <ul style="list-style-type: none"> - Goodwill from NGOs and government. <p>viii) - Sanitation Experts: the project could have not been implemented without them.</p> <ul style="list-style-type: none"> - Cooperation network: UNISWA, Central Committee, Ministry of Health, NGOs, City Council. Through the network, sanitation and dry sanitation has been heard and disseminated further. - Experience of the project implementors: peer review from Zambia, GDTAF and in the final months UNISWA - important and trustworthy experiences from other countries as well. - Finnish students: a key group of people who have monitored the project, assisted in the field and made sure that the project goes forward. - The motivated ones: if they will continue with the dry toilets (the owners, the workers) they can act as the motors for continued development. - Dry sanitation as a method answering to the challenges of developing countries and areas. 	<ul style="list-style-type: none"> - Communication protocol. (Personal communication between Finnish and some Experts who are able to contact Finland on information like funds.) <p>vi) - Implementation through NGO</p> <ul style="list-style-type: none"> - No clear lines of reporting and defined roles and responsibilities for the different stakeholders. - Failed to get the direct people to sustain the practices. The change of life is expected for the people who are involved in the project. <p>vii) - Poor participation.</p> <ul style="list-style-type: none"> - Poor spirit of volunteerism. - Poor community mobilisation skills. - Poverty. - Inadequate skills. <p>viii) - (local) communication</p> <ul style="list-style-type: none"> - High costs of building the dry toilets. - The Sanitation experts' motivation: even though essential to the project, still more ownership and commitment from them would have been needed. - Personal chemistry and internal friction. - Insufficient ownership and committed participation at different levels: the SA, the City Council, the leaders, UNISWA (more would have been needed). - The unfamiliar technology, which was not chosen by the community themselves. - The selection criteria for households unclear and the decision-making not always including the household.
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Opportunities	Threats
<p>i) - Opportunity of having a toilet. The use of urine and compost.</p> <ul style="list-style-type: none"> - The toilet can inspire to have garden and use compost. - Has inspired to gardening. - One member to learn how to build a toilet so they can build in rural area. - To learn and use a compost toilet. - To have a toilet. - Opportunity to use the end products and plant food. - To learn more about dry sanitation and composting. - One day maybe the children will use the compost. - Once you know how to use the compost it can be used in the garden. - The use of the compost. <p>ii) - Experts' team to have a container as a meeting point.</p> <ul style="list-style-type: none"> - More improvement in sanitation. - Experts can be hired to other projects and communities. <p>iii) - Constructors have learned to construct the toilets.</p> <ul style="list-style-type: none"> - If people are educated well there is a lot of benefits such composting and gardening. - To see well done composts. Looking forward to the experts and other people to set up gardens as demonstration. - To encourage people to do gardening. - Toilets are lifetime (not pit latrines). <p>iv) - Public understanding and knowledge of a compost toilet.</p> <ul style="list-style-type: none"> - Sanitation Experts to take part in exchange programs. - Use of compost in gardens and establishment of small gardens. <p>v) - To expand the project to other communities, others to come and see the work done.</p> <ul style="list-style-type: none"> - Salvation Army knows more about the families who are benefiting of the project and this compliments with the work that Salvation Army is doing. <p>vi) - Finland continuing to work around the project and applying more funding.</p> <ul style="list-style-type: none"> - Future sanitation management. <p>vii) - Proximity to capital city.</p> <ul style="list-style-type: none"> - Access to market. - Access to information. <p>viii) -Green Living Movement Swaziland: if the local people understand its benefits,</p>	<p>i) - The owner not there to teach and educate users about the use and maintenance.</p> <ul style="list-style-type: none"> - Problems in affording toilet paper. - Children can go to the back chamber. But still better than pit latrines because children can't enter. - Not being aware of the safe use of compost can spread diseases. - Members of the public vandalism, the toilet not being used in proper way. - No threats because toilet paper, sawdust and cleaner are organized for the toilet. - One day they might build a house to the place of the garden. - No threats. - The toilet not used properly. If the experts don't come to educate and follow up. - No threat because the compost is not used yet. Maybe someone will use it one day without proper knowledge and get sick. <p>ii) - No money for Experts to continue their work.</p> <ul style="list-style-type: none"> - The project coming to an end. <p>iii) - When the toilets get full and people are not willing to use the compost.</p> <ul style="list-style-type: none"> -Emptying of Enviro Loos. - People not using the toilets properly. - Compost not used properly. - Youth damaging everything. - The toilets are not properly used → health hazards. <p>iv) - Incorrect use of the toilet.</p> <ul style="list-style-type: none"> - Poor and slow acceptability. <p>v) -</p> <p>vi) - Other donors and other organizations are establishing the project of dry sanitation and taking the glory whereas it is originally implemented by Finland.</p> <ul style="list-style-type: none"> - Other alternatives on sanitation e.g. pit latrines. <p>vii) - HIV/AIDS</p> <ul style="list-style-type: none"> - Inadequate land <p>viii) -Vandalism</p> <ul style="list-style-type: none"> -In-and-out migration has challenged the education. -The tenants: same as above. It takes a lot of resources to educate over and over again. -Politics and seeing projects as possibility to boost one's position in the community.

<p>they can do a lot for Msunduzi and development issues together with the community</p> <p>-Msunduzi Environmental Association: same as above, if they are able to get on sustainable basis and without internal friction, they have a lot of potential in developing the community and using the skills gained for their own benefit and the community.</p> <p>-Msunduzi as the pilot community, which could be travelled to by other communities if managed well on its own.</p> <p>-Use the gained skills, knowledge and experiences in the future as an individual or/and as a team.</p>	<p>-Personal frictions</p> <p>-City Council's resources: will they have the time and motivation to continue with Msunduzi after the project or will they think that so much has been done for them already?</p> <p>-The persistent stigma</p> <p>-The inability to do testing on health in Swaziland</p>
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Appendix 6. Table of the results of the scoring and ranking activity at the Higher-level course

means the number of ranking

#	Key Achievements in Msunduza Dry Sanitation Project	#	Key Challenges in Msunduza Dry Sanitation Project
	Group: Ministry of Health		
1	Establishment of Recycling Centre	1	Failure of project team to accept positive criticism
2	Identification of the type of sanitation facility best for Msunduza	2	Selection criteria of the owners
3	Formation of Enviro Clubs, training of Experts and the entire community	3	Lack of proper sanitation educational approach
4	Construction of 33 toilets	4	Stigma associated with human waste (cultural/ beliefs)
5	Using human waste for gardening	5	Poor project planning and communication with stakeholders
	Group: City Council		
1	Able to pilot the best environmental sanitation practices that are sustainable and eco-friendly	1	Ensuring that the existing built composting dry toilets are functional and used
2	Improved nutrition and health, environmental degradation	1	Coordination within key stakeholders
2	Improved sanitation and water quality	2	Change of attitudes, education and awareness
4	Experts training to replicate practices	2	Affordability of toilet and community participation
		3	Ownership and commitment of toilet owners – criteria for selection

	Group: Msunduza leaders		
1	33 toilets built	1	Not enough space for farming
2	No digging of many pits in the small plots	2	High cost of building material
3	Reuse group formed	3	The use of compost not accepted by all
4	Clean community	4	Toilets at the meeting points are not maintained properly
5	Front and backyard gardens	5	No security to avoid vandalism
	Group: Sanitation Experts		
1	Knowledge	1	Acceptance in the community
2	Leadership skills	2	Poor communication
3	Improved hygiene	3	Toilets are expensive eg. E7000 is not enough to build a complete dry composting toilet
4	Gardens	4	Meeting point toilets being vandalized, no caretakers
5	Toilets	4	Lack of participation by community, toilet owners, leaders
	Group: Msunduza Environmental Association & the youth		
1	Saves the use of land and water	1	Toilets not user-friendly for disabled
2	Improves health standards through education by sanitation experts	2	High construction cost of toilets
3	Promotion of organic gardening	3	Lack of community participation
4	How to use the compost of dry toilets	4	Vandalism
4	Reduction of health hazard toilets	5	Lack of proper space to do composting

			and gardening
	Group: Local NGOs		
1	Toilets last for a long time	1	Stigma is very high for the dry sanitation toilets
2	No smell compared to the pit latrines	1	Lack of knowledge on proper toilet use e.g. dry substances
3	Toilets (meeting points and homesteads)	2	The structure is not suitable for disabled, drunken, old people etc.
4	Education on sanitation and hygiene by sanitation experts	3	Lack of funds for the continuity of the project
5	Cheap manure which is rich in nutrients for the gardens	4	Toilet seats are not gender balanced (suitable for males but not females)